A Pilot Study Examining the Initial Effectiveness of Acceptance Based Behavior Therapy for Modifying Diet, Physical Activity Levels and Smoking Status in a Cardiac Population

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Dedications

To my parents, Mark and Nancy Goodwin. Witnessing your hard work and dedication to our family has made me the person I am today. Momma, you have supported me every step of the way and I can't thank you enough. I love you. Daddy, you are the hardest working man I know, thank you for everything. I love you. You are the best parents a child could ask for.

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Abstract

A Pilot Study Examining the Initial Effectiveness of Acceptance Based Behavior Therapy for Modifying Diet, Physical Activity Levels and Smoking Status in a Cardiac Population

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Cardiovascular disease remains the leading cause of death in the United States and costs Americans nearly $276 billion in direct and indirect costs per year (American Heart Association, 2009). It is reported that 90% of cardiac events are attributable to a small number of modifiable risk factors which, if changed, can greatly decrease morbidity and mortality rates. Previous research has reported significant barriers to adopting behavior change among cardiac patients. These include difficulties controlling cravings, distaste of heart-healthy foods, and distress associated with increased physical activity (Cabanac, 1986; Dusseldorp, Van Elderen, Maes, Meulman, & Kraaij, 1999; Falk, Bisogni, & Sobal, 2000). We hypothesize three psychological factors that may play an important role in making and maintaining lifestyle changes: intolerance of discomfort, mindfulness, and values clarity. These three factors are central acceptance-based behavior therapy (ABBT) approaches. The current study evaluated the feasibility and initial effectiveness of ABBT at increasing adherence to behavioral recommendations in a cardiac population. The present study, termed Project ABLE, consisted of four, 90-minute group sessions aimed at helping participants become more mindful, learn distress tolerance skills and, strengthen their commitment to heart-health related values. Twelve participants were assessed at baseline and post-treatment. The program was associated with high treatment acceptance and comprehension, as well as positive change in diet, physical activity, and smoking behaviors. Implications of the findings and future research directions are discussed.

Table of Contents

A Pilot Study Examining the Feasibility of Acceptance Based Behavior Therapy for Modifying Diet, Physical Activity Levels and Smoking Status in a Cardiac Population

Cardiovascular disease is the leading cause of death in the United States as well as a major public health concern (American Heart Association, 2009; Sperry, 2009). Cardiovascular disease (CVD) is a technical term referring to the diseases of the heart and blood vessels collectively. The direct and indirect costs of CVDs total nearly $276 billion annually (consisting of coronary heart disease, hypertensive disease and heart failure costs; (American Heart Association, 2009), and the CDC reports 25.1 million non-institutionalized adults in the United States suffer from a cardiac disease at any given time (2009). CVD poses great risks to morbidity and mortality rates. For example, survivors of an acute heart attack have a risk of illness or death approximately 15 times higher than the general population (American Heart Association, 2009; Cobb, Brown, & Davis, 2006). Of critical importance, a vast majority of patients with heart disease (85%-100%) have at least one modifiable risk factor; i.e., a behavior, which if changed, can result in decreased mortality and morbidity. Modifiable risk factors include increasing physical activity, adhering to a diet low in fat, cholesterol and sodium, and smoking cessation. The following sections describe obstacles to good heart care and a proposed study to examine the feasibility and initial efficacy of an intervention posited to impact certain psychological variables hypothesized to facilitate behavior change.

Preventability of Heart Disease

Heart disease entails an extremely high mortality risk, which can be lowered through specific life-style changes in diet, exercise and smoking. In fact, it is estimated that approximately 30% of MI fatalities and the majority of cardiac surgeries could be avoided with healthy changes in life-style (AHA, 2009). Many studies have demonstrated that a reduction in

cardiac risk factors is effective in decreasing recurrent coronary events and mortality rates among CVD patients (Cobb, et al., 2006; Ornish, et al., 1990; Ornish, et al., 1998). However, despite this promising rate of improvement, only one-third of patients who have suffered a first heart attack take necessary steps to prevent subsequent attacks (Cobb, et al., 2006; E. A. Dorneleas, 2008).

Diet

Cardiac patients often eat a diet that is high in fat, sodium and cholesterol. High-calorie diets that are high in cholesterol increase the risk of artherosclerosis, obesity and hypertension—all of which are risk factors for a cardiac event. It is recommended that cardiac patients maintain a diet low in fat, sodium and cholesterol and high in fiber, fruits and, vegetables to decrease cardiovascular risk (Danhauer, Oliveria, Myll, Berra, & Haskell, 2004). These dietary changes have been shown to rehabilitate cardiac patients and significantly reduce the risk of future cardiac events (Ornish, et al., 1998).

Physical Activity

Sedentariness is defined by the CDC and American College of Sports Medicine as the absence of leisure time physical activity and/or less than 30 minutes of physical activity each day (Pate, et al., 1995). Physical inactivity is responsible for 12.2% of the global burden of MI after controlling for other cardiovascular disease risk factors, such as smoking and diet. The AHA reports that people who modify their behavior and start regular physical activity after a MI have better rates of survival and quality of life (2009). In fact, it is reported that a 2.3% decline in sedentary time successfully prevented or postponed 17,445 CHD deaths in the U.S. (AHA, 2009), which accounts for 5% of the CHD population. Despite these promising statistics, 31% of respondents with heart disease report being sedentary, according to Behavior Risk Factor

Surveillance System/Center for Disease Control (BRFSS/CDC) data (AHA, 2009) and 95% of adults do not engage in recommended amounts of physical activity according to accelerometer readings (Troiano, et al., 2008).

Cardiac patients are advised to increase physical activity. It is recommended that patients incorporate moderate intensity aerobic exercise for at least thirty minutes a day, five days a week (AHA, 2009). Physical activity has been found to decrease myocardial demand (i.e., improve circulation of oxygenated blood) improve blood pressure control, weight management and slow the progression of atherosclerosis (Moore, et al., 2006). Physical exercise, along with changes in diet, is considered one of the most effective ways to prevent and rehabilitate cardiac patients (Ornish, et al., 1998).

Smoking

Cardiac patients are advised not to smoke. Smoking tobacco increases heart rate and blood pressure. The carbon monoxide from cigarette smoke thickens blood and decreases the flow of oxygen to the heart. Additionally, smoking damages the endothelial lining of the arteries and results in a decreased availability of oxygen to the heart. Continued smoking greatly increases risk of cardiac mortality following MI, whereas cessation can diminish risk by nearly 50% (E. A. Dorneleas, 2008; Patten, et al., 1996; Scott & Lamparski, 1985).

Difficulty Adhering to Lifestyle Changes

Despite widespread evidence that modifying diet, smoking and exercise behaviors reverses CVD and extends life, most patients with the disease do not make the recommended lifestyle changes. A number of cardiac lifestyle interventions have been developed in response to the difficulty in making and maintaining behavioral changes in diet, physical activity and smoking. In summary, these interventions are inadequate in three ways. First, these interventions

are, in general, minimally successful, especially in the long-term modification of smoking, physical activity and, dietary compliance in both intervention and no-intervention groups (Bennett & Carroll, 1994; Bolman, de Vries, & van Breukelen, 2002; E. Dorneleas, Sampson, Gray, Waters, & Thompson, 2000; Hajek, Taylor, & Mills, 2002; Rigotti, McKool., & Shiffman, 1994). Moreover, equivalent cardiovascular mortality among treatment and non-treatment groups are also reported (Carson, Phillips, & Lloyd, 1982; Marra, Paolillo, Spandaccini, & Angelino, 1985; Vermeulen, Lie, & Durrer, 1983). Secondly, those programs that are more successful are more time and resource intensive, often involving the relocation of patients for long periods of time (e.g., 3 days to 4 weeks; (Billings, Scherwitz, Sullivan, & Sparler, 1996; Jiang, Sit, & Wong, 2007; Lisspers, et al., 1999; Pischke, Scherwitz, Weidner, & Ornish, 2008; Sundin, et al., 2003). Given the fact that 80% of people who are employed prior to a cardiac event return to their previous jobs after hospitalization, these more successful and intensive programs are not necessarily practical (Bhattacharyya, Perkins-Porras, Whitehead, & Steptoe, 2007; E. A. Dorneleas, 2008). Lastly, the majority of interventions focus on one behavior (the most popular being exercise-based cardiac rehabilitation). Most cardiac patients have multiple behavioral risk factors (Cobb, et al., 2006); therefore even if these single-focus programs are successful (and they are not for most patients), they are not impacting other critical lifestyle behaviors that are important in cardiac rehabilitation. The following sections describe specific difficulties in adhering to physical activity, smoking and diet recommendations.

Physical Activity

In the current population, 39% of 29,393 adults responding to the 2007 National Health Interview Survey (NHIS) report being physically inactive and 61% of adults report never engaging in periods of vigorous leisure-time physical activity lasting ten minutes or more per

week. Moreover, only 24% of the population report engaging in vigorous activity three or more times a week; which is still less than recommended levels of physical activity (CDC, 2009). Despite increased risk awareness among cardiac patients, many patients continue unhealthy and sedentary lifestyles after a cardiac event (Dusseldorp, et al., 1999; Sniehotta, et al., 2005). Training in regular physical exercise has become a significant part of cardiac rehabilitation programs (CRP) due to its importance in preventing future cardiac events. However, maintaining exercise behaviors after cardiac rehabilitation appears to be extremely difficult, even after significant training and health benefits have been attained (Bock, Albrecht, Traficante, Clark, & Pinto, 1997). According to BRFSS/CDC data (2003), approximately 30.8% of cardiac patients who were told to increase their physical activity levels reported a sedentary lifestyle. However, this report of sedentary lifestyle could be grossly underreported given the limits of self-report. Several interventions that target increasing physical activity in cardiac populations have been only moderately successful, with many cardiac patients resuming less active/sedentary lifestyles once the intervention period has passed. The results of a review and meta-analysis of 48 Randomized Controlled Trials implementing an exercise-based rehabilitation for CHD patients suggest two interpretations for the lack of efficacy; either exercise-only cardiac rehabilitation programs are effective enough to elicit the same results as a comprehensive cardiac rehabilitation program or, comprehensive rehabilitation programs are not effective enough to elicit results above and beyond those of exercise-only programs (Taylor, et al., 2004). However, compared with usual care, cardiac rehabilitation programs (exercise-based) were associated with reduced cardiac mortality (Taylor, et al., 2004).

In summary, physical activity goals are difficult to attain and even more difficult to maintain. Noting this difficulty is especially important given that 35% of adults are considered

overweight and 26% are considered obese nationwide (CDC, 2009). Sedentary persons are five times as likely to develop CVD and twice as likely as physically active persons to die from CVD. Effective interventions are strongly needed given the lack of success displayed by current interventions targeting long-term adherence to increases in physical activity.

Diet

Modifiable diet-related risk factors such as hyperlipidemia and obesity are associated with CVD (Falk, et al., 2000). A plethora of materials and interventions have been developed to aid cardiac patients in making recommended dietary changes, with little long-term adherence (Conn, Hafdahl, Moore, Nielsen, & Brown, 2009). Adherence to dietary change recommendations is at an alarming low (Conn, et al., 2009; Marshall, et al., 2008), and explanations for why cardiac patients fail to adhere recommendations suggest difficulty adjusting to the taste of healthy foods and managing cravings for unhealthy foods.

Koikkalainen and colleagues explored barriers to adherence to dietary recommendations in cardiac populations (Koikkalainen, Lappalainen, & Mykkanan, 1996). Through the use of self-reports, researchers indicate that cardiac patients reported a dislike for the taste of healthy foods and situational difficulties, such as eating in company or having excess food available. A dislike for the taste of cardiac foods was also a reported barrier in a study by Barnes and Terry (1991), in addition to reported difficulties in maintaining diet guidelines while grocery-shopping and dining-out.

Smoking

For smokers, discontinuing tobacco use is critical in recovering from a cardiac event and decreasing mortality risk. Despite favorable statistics regarding decreased mortality and morbidity rates among cardiac patients who have stopped smoking, a significant portion of

cardiac patients continue to smoke. In a study by Burling, Singleton, Bigelow, Baile, and Gottlieb (1984) it was found that 40-60% of MI patients who smoke resume smoking approximately 6 months post-cardiac event. In the absence of a hospital-based smoking cessation program, it is reported that approximately 25% of patients admitted to a coronary care unit report having stopped smoking (Rigotti, et al., 1994) one year post-admission. While this percentage is much higher than the 15% quit rate among those patients admitted for general hospital admission (Glasgow, 1991), it is low when considering the impact smoking cessation can have on cardiac rehabilitation. Additionally, it is suggested that those individuals who could change their addictive behaviors in response to public campaigns have already done so; and those cardiac patients who are smokers represent a unique subgroup of people who are unable to change their risky behavior even when it puts them at the highest risk for mortality.

Tobacco dependence refers to the development of withdrawal symptoms following discontinued use of a substance (e.g., tobacco cigarettes). Common predictors of treatment adherence reported by studies are severity of cardiac disease, dependence on tobacco and motivation to quit smoking. More specifically, low dependence on tobacco prior to an intervention resulted in higher rates of cessation and participants with greater degrees of cardiac severity had higher cessation rates (Hajek, et al., 2002; Ockene, et al., 1992; Patten, et al., 1996). Tobacco dependence is the biggest obstacle to smoking cessation and future interventions should incorporate this in their methodologies.

Potential Factors Associated with Low Adherence

Forman and colleagues (2009) have proposed three psychological factors that may play an important role in making lifestyle changes. One problem is that making lifestyle changes comes with a large amount of discomfort. Changes in diet often come with increased cravings

and compromises in food taste often due to decreased sodium-intake (Falk, et al., 2000; Forman, Butryn, Hoffman, & Herbert, 2009), exercise produces physical discomfort and anxiety about the discomfort (Butryn, Forman, Hoffman, Shaw, & Juarascio, 2009), and smoking cessation comes with numerous psychological cravings (R. A. Brown, Lejuez, Kahler, Strong, & Zvolensky, 2005; Gifford, et al., 2004). In order to experience the benefits of lifestyle changes, long-term adherence is necessary. Adherence rates may dwindle over time as motivation to maintain this initially uncomfortable life-style decrease. Recent studies suggest that behavioral maintenance may require the ability to tolerate unpleasant experiential states (Butryn, et al., 2009; Forman, et al., 2009). As Forman et al. (2009) have argued, distress tolerance may be a critical determinant of adherence. Distress tolerance refers to an individual's threshold for tolerating physical and psychological stress. It has been proposed that individuals with a low ability to tolerate distressing thoughts or feelings might be less likely to engage in recommended behaviors. For example, individuals who are less able to tolerate food or nicotine cravings are less likely to engage in healthy eating and smoking cessation.

A number of studies have demonstrated that people attempt to select physical activity they find comfortable, highlight the importance of the ability to tolerate discomfort while engaged in physical activity. A meta-analysis by Dishman and colleagues (1997) evaluated physical activity interventions and found that those interventions that require low-intensity physical activity had higher rates of effectiveness and adherence. Moreover, several studies have suggested the inverse relationship between intensity of a physical activity and adherence to said activity (Lind, Joens-Matre, & Ekkekakis, 2005), with lower intensity physical activities associated with higher adherence rates. These results were also found with participants who were given specific intensity goals to reach regarding physical activity levels. All participants

chose moderate intensity exercise regimens regardless of the intensity goal they were assigned (low-, moderate-, high-intensity (Dishman, 1994). Additionally, a study by Cabanac (1986) demonstrated that individual preference for physical activity intensity depends on the degree of pleasure or displeasure they experience during the activity. In Cabanac's study participants were able to adjust either the slope or speed of a fixed-slope or fixed-speed treadmill to meet their preferred intensity level. For example, if the slope on the treadmill was fixed by the researcher, participants were only capable of adjusting the speed of the treadmill. Results indicate that participants chose a speed or slope that was reciprocal of the researcher-fixed variable. In other words, participants who were able to adjust the speed of a treadmill with a high degree slope did so in a manner that evened out their energy output and minimized discomfort. The same is true for those participants who were able to modify the slope of a researcher-fixed treadmill speed. Cabanac (1986)concluded that behavioral choices made by participants were driven by pleasure. The results of these studies suggest that distress tolerance does play an important role in reaching and maintaining physical activity goals.

Smoking cessation research has also suggested the importance of distress tolerance. Brown, Lejuez, Kahler, and Strong (2002) conducted a study to test the hypothesis that limited ability to tolerate physical and psychological distress is associated with early relapse from smoking cessation. Results indicated that those who relapse immediately have much higher levels of distress intolerance compared to delayed relapsers. An unpublished dissertation revealed similar results: distress tolerance (defined as the ability to tolerate physical and psychological stress) significantly predicted time to smoking lapse above and beyond other smoking-related variables such as negative affect, anxiety sensitivity and withdrawal symptoms

(Stipelman, 2009). Thus, it appears that increasing distress tolerance will improve smoking cessation and decrease relapse rates.

Research concerning difficulties in weight loss for non-cardiac populations has similarly pointed to the importance of distress tolerance. Kearney and O'Sullivan (2003), reported that increased difficulty in coping with negative emotions have been associated with reduced dietary compliance. Moreover, weight regainers compared to weight maintainers have been shown to delay responding to regained weight (i.e., continue to modify diet and exercise regimens) and to eat in response to/ to avoid unpleasant internal states (Byrne, Cooper, & Fairburn, 2003). Previous research by Falk, Bisogni and Sobal (2000) suggest the negative impact of cravings and prioritizing day to day activities on maintaining recommended dietary changes.

Lastly, in a study by examining attitudes and factors affecting dietary adherence, Wright (1994)found that the majority of patients presenting to a cardiac clinic found a heart-healthy diet boring and found cravings for desirable foods to be uncontrollable. Lloyd and colleagues (1995) also reported cravings and diluted taste as the largest barrier to reduced-fat diet adherence. Evidence suggests the importance of increasing distress tolerance to increase adherence to weight-loss, physical activity and, smoking cessation regimens.

Two other factors that may be associated with low adherence are mindfulness and values clarity. Mindfulness refers to the present-moment and non-judgmental acceptance of internal experiences, such as thoughts, feelings and physical sensations, along with clarification of valued goals (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008; S.C. Hayes, Strosahl, & Wilson, 1999). Values clarity refers to key personal values which are broken down into behavioral goals. These behavioral goals are completed in the service of one's personal values. It is suggested that those who do not adhere to life-style change recommendations find it difficult to be mindful of

their life-style (i.e., food choices, exercise regimen, smoking behavior) (Butryn, et al., 2009; Forman, et al., 2009; Gifford, et al., 2004). Additionally, patients who do not have a clear stance on their values may find it difficult to make these drastic behavioral changes. In other words, those patients who lack clarity in their values may find it increasingly difficult to make behavioral changes because they don't see the worth in the behavioral change. In an exploratory study by Falk, Bisogni and Sobal (2000), it was reported that fear of subsequent cardiac attacks, being in touch with personal needs and priorities and increased awareness of their body and well-being were associated with positive dietary change. Conversely being externally motivated and struggles with prioritizing everyday activities were found to negatively impact dietary adherence.

Current behavioral treatments may be improved by integrating the aforementioned variables. This integration can occur by strengthening the patient's commitment to behavior change, increasing distress tolerance, promoting mindful awareness of eating, exercise, and smoking behaviors and, clarifying life values while creating goals in service of those values. Such components are well-represented within certain novel models of cognitive behavior therapy such as Acceptance Based Behavior Therapy.

Acceptance Based Behavior Therapy (ABBT)

Central to ABBT is psychological flexibility (the ability to respond differently in the presence of distressing internal events) and the assumption that maladaptive behaviors can be explained as attempts to avoid unwanted internal events (S. C. Hayes, Strosahl, & Wilson, 2002; S. C. Hayes & Wilson, 1994). Psychological flexibility is established through the processes of acceptance, cognitive defusion, mindfulness, self as context, values and committed action. Maladaptive behaviors, in cardiac patients for example, would be avoiding behavior change to avoid feeling distress related to heart-healthy living (cravings for foods, nicotine and discomfort

in exercising). Unlike other psychological interventions which strive to modify negatively-evaluated thoughts and feelings in order to produce behavior change, ABBTs suggests that behavioral action need not be driven by internal experiences such as thoughts, feelings and sensations. (S. C. Hayes, et al., 2002). Rather than ignoring or trying to eliminate unwanted thoughts and feelings, the ACT alternative is to accept one's feelings and thoughts (e.g., discomfort felt while exercising) while still engaging in activities in line with one's values (e.g., increased physical activity). In other words, if a patient can work to become more accepting and less avoidant of his or her distress caused by making more heart-healthy behavior choices (eating healthily, exercising, not smoking), their willingness to experience these internal states may increase. When patients are more willing to experience their thoughts and feelings, they are more likely to carry out behaviors that are in line with their life values.

Values clarification is an integral process of ABBT and may increase the individual's willingness to engage in new behaviors. Often, the avoidant behaviors used by an individual to avoid an unpleasant internal event are inconsistent with their values. For example, many cardiac patients highly value being physically healthy even while they engage in behaviors that put their health at extreme risk. One theorized barrier to making behaviors more consistent with values is lack of clarity and/or direct awareness of values. Increased behavior change may therefore be accomplished by having clients clarify their values and helping them stay mindfully aware of these values during important decision-making times. Being more connected to one's values is thought to lead to an increased willingness to experience aversive states for the sake of behavior in the service of such values.

Promise of Acceptance-Based Health Behavior Interventions

Increasing our understanding of factors associated with low-adherence to diet, exercise and smoking changes is essential if we are to develop more effective forms of life-style interventions. Especially promising are interventions shown effective at increasing distress tolerance, such as ABBT. To date, ABBT's ability to improve adherence to heart-healthy lifestyles has not been evaluated in a cardiac population. However, acceptance-based therapies have been found effective in eliciting behavior changes in regards to diet, exercise and smoking.

ABBT and Smoking

In a study by Gifford et al. (2004) smoking outcomes were evaluated in 68 nicotine dependent smokers who were randomized to an Acceptance and Commitment Therapy (ACT) or nicotine replacement therapy (NRT). Participants in the ACT group received seven, 50-minute individual sessions of ACT weekly as well as seven, 90-minute group sessions of ACT weekly. The ACT group focused on identifying internal and external triggers, values, goals and barriers to smoking cessation, acceptance and willingness, mindfulness skills, and cognitive defusion skills. Results indicated no post-treatment differences between interventions, but did indicate the superiority of an ACT intervention one year later. Smoking outcomes in the ACT group were found to be mediated by improvements in acceptance-related skills. More specifically, emotional avoidance and inflexibility in responding predicted smoking outcome (participants who were cognitively rigid and emotionally avoidant were more likely to continue smoking).

In a recent pilot study by Hernandez-Lopez and colleagues (2009) ACT was found feasible and effective at maintaining smoking cessation. The pilot study was a quasi-experimental design comparing ACT to cognitive behavioral therapy (CBT). Results indicate that ACT was comparably feasible as CBT. Additionally, the superiority of ACT versus CBT for

biochemically-supported abstinence at twelve month follow-up was reported: 30.2% for ACT participants and 13.2% among CBT participants.

ABBT and Modifying Health Behaviors in Medical Populations

ACT models have been used effectively to increase compliance with health recommendations among several types of medical populations, including HIV and diabetes patients. In a study by Gregg (2007) a one-time, four-hour ACT plus education group was compared to an education-only group for improving self-management of diabetes care, specifically, Hb_{A1C} levels. Both conditions consisted of diabetes care, but the ACT group incorporated mindfulness and acceptance techniques for managing difficult diabetes-related thoughts and feelings. Results indicate that at 3 months follow-up, the ACT condition was more likely to use coping strategies, report better diabetes care and more healthy Hb_{A1C} values. Moreover, a meditational analysis indicated that changes in acceptance-coping and self-management behaviors mediated the impact of treatment on changes in Hb_{A1C} levels. Diabetes care and cardiac care exhibit similar difficulties related to adherence. Thus an ACT-model (which was found successful in a diabetes population) may prove effective in a cardiac population.

Additionally, ACT has been used to increase medication adherence in an HIV positive population. In an unpublished dissertation, an acceptance-based intervention for increasing medication adherence in an HIV population was evaluated. This study compared treatment-as-usual (TAU) to TAU plus an acceptance based intervention for increasing adherence to highly active antiretroviral therapy in a group of 31 adults identified as uninsured, minority and, low socio-economic status. Results indicated no difference in the acceptance-based intervention on self-rated medication adherence. However it was reported that patients in the intervention group

showed greater improvements in biological markers of treatment adherence (CD4 levels) compared to TAU. Additionally, it was found that baseline anxiety and baseline mindful acceptance predicted treatment adherence at a 12-week follow-up. Improvements in diabetes care (Gregg, et al., 2007) and HIV care (Moitra, 2008) using an ACT paradigm give promise to the potential success of an ACT-based intervention at increasing heart-healthy behaviors in a cardiac population.

ABBT and Physical Activity and Diet

Several studies have shown that ACT is efficacious at eliciting diet and physical activity change (Forman & Herbert, 2009; Tapper, et al., 2009). In a study by Tapper, et al. (2009) four, two-hour mindfulness-based workshops were found to elicit a significantly greater increase in physical activity levels (but not weight change) when compared to a control group (i.e., participants told to continue with their current diet plans). Moreover, an analysis excluding participants reporting no utilization of mindfulness techniques showed a greater increase in physical activity and overall weight loss among those participants in the experimental group.

In a 12-week, 12-session open-trial of an acceptance-based behavior therapy targeting weight loss (Forman, et al., 2009), 29 overweight or obese women lost an average of 6.6% of their body weight at post treatment and 9.6% at a 6-month follow-up. Participants in this study not only lost weight during the course of the intervention, but maintained and increased weight loss 6 months later. Similarly, a study by Lillis, Hayes, Bunting and Masuda (2009) reported the success of a 1-day mindfulness and acceptance-based workshop aimed at improving quality of life, psychological distress, body mass, distress tolerance and, weight specific acceptance by targeting psychological distress and obesity related problems.

While ABBT has not been evaluated to increase heart healthy behaviors in cardiac populations, a closely related intervention has given promise to the feasibility of delivering of an acceptance-based intervention to a cardiac population. A recent study by Sullivan, et al. (2009) evaluated the effectiveness of a mindfulness-based psychoeducational intervention at decreasing depression and anxiety in a chronic heart failure population. The intervention consisted of mindfulness-based stress reduction (MBSR) plus support groups and education on improving coping skills, such as social support and living with heart failure. The MBSR component of this multi-factorial intervention approach sought to increase present moment awareness without judgment. Results of this study indicate a significant decrease in anxiety, depression as well as improved symptoms and clinical scores (regarding heart failure) in favor of the intervention, compared to a no-treatment control group. Additionally, these results were maintained one year later. These results are in line with previous research by Reibel and colleagues (2001) evaluating MBSR in a heterogeneous patient population. Collectively, these results suggest that increasing acceptance increases the likelihood of behavior change.

Collectively, ABBT studies demonstrate changes in important behaviors by increasing levels of mindfulness and distress tolerance among participants. Applied to a cardiac population, the current study aims to examine the feasibility, acceptability, and initial estimates of efficacy of an ACT intervention aimed at increasing adherence to a heart-healthy lifestyle in a cardiac population.

Current Study

The current study evaluated the preliminary effectiveness of a brief ABBT intervention at increasing cardiac patients' adherence to a heart healthy lifestyle, i.e., a low-fat, low-cholesterol, low-sodium diet; increased physical activity and decreased sedentary time; and little to no

smoking. The intervention consisted of four, 90-minute sessions during which mindfulness, acceptance and defusion skills was explained and applied to thoughts and feelings specific to cardiac health. Additionally, health-related values were discussed and clarified and barriers to committed change were addressed.

Hypotheses

Hypothesis 1. An Acceptance Based Behavioral Lifestyle Enhancement Project (Project ABLE) is associated with moderate to high levels of treatment acceptability and comprehension.

Participant acceptability was examined post-intervention using a treatment acceptability questionnaire. Participant comprehension was assessed using a brief exam. Treatment compliance, satisfaction and outcome have been associated with client perceived treatment acceptability (Cross, Calvet & Johnston, 1990). Given this, the extent to which participants find the treatment acceptable will be assessed. The treatment was considered acceptable if the mean score for participants' acceptability was a four or greater. Additionally, participants were judged to have strongly comprehended the intervention if their quiz scores were above 80% and/or if the average self-rating of construct difficulty were a 4 or greater (higher ratings indicate less difficulty). Previous studies utilizing ABBT to increase weight loss or decrease smoking have reported moderate to high levels of treatment adherence and comprehension among study participants (Forman, et al., 2009; Gifford, et al., 2004). Thus, it was hypothesized that the current study will also be associated with moderate to high levels of treatment acceptability and comprehension.

Hypothesis 2: Project ABLE increases levels of mindfulness, acceptance and defusion from pre-treatment to post-treatment.

Previous studies have reported the mediational effects of ACT-specific psychological variables on eliciting changes in diet, physical activity and smoking behaviors (Forman, et al., 2009; Gifford, et al., 2004; Gregg, et al., 2007; Lillis, et al., 2009). The current study aims to evaluate the ability of Project ABLE to impact variables hypothesized to mediate behavioral change.

Hypothesis 3. Participants increase their adherence to dietary, exercise, and smoking recommendations from pre-treatment to post-treatment.

The therapy developed will combine "heart healthy" education and acceptance-based behavioral therapy to address difficulties in initiating and maintaining changes in diet, physical activity and smoking. This will involve providing information on American Heart Association recommendations regarding heart healthy diets, recommended amounts of physical activity and smoking behaviors along with addressing emotional avoidance associated with making behavior changes. Additionally, the workshop will target values clarification in regards to cardiac health.

To evaluate the preliminary effectiveness of Project ABLE to increase adherence to heart healthy lifestyle recommendations, measures of dietary adherence, nicotine use and level of physical activity will be given to participants. Participants will be asked to complete these measures at the beginning of the first session, at the end of the fourth session and one month later. These measures will be compared across time to examine their potential impact on diet, physical activity and smoking changes. To maximize internal validity, a comparative control group would be utilized to address differences in treatment across time. However, at this early investigative stage a smaller open trial is indicated. Of note, previous RCTs comparing an active intervention compared to a usual care control group have found that diet (Burke, Dunbar-Jacob, Orchard, & Sereika, 2005), weight (Fadl, et al., 2007), exercise (Moore, et al., 2006) and

smoking (E. Dorneleas, et al., 2000) behaviors within cardiac populations do not change substantially without intervention. Previously discussed research has pointed to the role of distress tolerance (experiential acceptance) and diet, exercise and smoking cessation behaviors. In line with previous research, it is expected that the current study, which is designed to address these constructs, will result in increased adherence, to dietary, exercise and smoking recommendations across time.

Hypothesis 4. Pre-post change scores in mindful awareness, acceptance, defusion and values/goals clarity are correlated with pre-post change scores in measures of physical activity, diet, smoking cessation and weight lost.

Many behavioral interventions have utilized meditational analyses to investigate the relationship between targeted process variables and outcomes. Formal meditational analyses are not possible. However, the strength of the associations between change in process variables and outcome variables can examine the degree to which outcome is driven by the intervention. Correlations between residualized change scores in the process variables and residualized change scores in the behavioral variables will suggest that the theorized mediators are active components of change. It is hypothesized that pre-post change scores in mindful awareness, acceptance, defusion and values/goals clarity will correlated with pre-post change scored in measures of physical activity, diet, smoking cessation and weight lost.

Preliminary Study

To assess the degree to which cardiac patients are currently adhering to lifestyle recommendations, an observational study was performed. Sixty-five patients were approached at the cardiac service of Drexel University College of Medicine and asked to complete a packet of questionnaires assessing their current diet, physical activity and smoking behaviors. Ten patients

declined participation and 55 agreed to complete the questionnaire packet. Thirty-nine questionnaire packets were completed and returned. Results from this study (*n* =39) indicate low adherence to recommended lifestyle modifications: 61.5% of sample reports a diet high in fat and cholesterol, 59.3% of sample reports a diet high in sodium, 20.5% of the sample reports low physical activity levels, 35.9% report moderate physical activity levels and, 71% of those participants who smoke (17.9% of the sample) report moderate to high levels of nicotine dependence. These results are consistent with previous findings (American Heart Association, 2009; Dusseldorp, et al., 1999). In conclusion, patients treated with standardize care are only minimally adherent to recommended lifestyle changes.

Method

Participants

Forty patients from the cardiac care unit and the Department of Family Community and Preventive Medicine of Drexel University College of Medicine out-patient clinics expressed interest in the study and recruitment was conducted through the use of pamphlets. The out-patient clinics utilized for recruitment serves a predominately minority population with-in a city with a reported household income 27% less than the average state-wide income[1]. Flow of recruitment can be seen in Figure 1. Eligible participants were patients who were at high risk for developing Coronary Artery Disease (CAD) and patients who have a diagnosis of ACS, are between the ages of 18 and 75 years age and are able to read and speak English fluently. For the purposes of this study, "high risk" was defined as overweight and diagnosed with another CAD risk-factor, such as hypertension or diabetes. Criteria for exclusion were legally blind or deaf or anyone judged to be unable to fully participate in the group due to psychiatric, cognitive or

[1] According to City-data.com, Philadelphia, PA has a household median income of $36,976 versus a PA-state income of $50,713. The clinics utilized for recruitment serve (mostly) the Philadelphia area.

substance-abuse related impairment. The present study aimed to capture a diverse group of cardiac patients in regards to lifestyles, therefore minimal inclusion and exclusion criteria were set (See Table 1 for detailed demographics). The majority of participants (n=16) were minority women (68.9%) with the majority of participants identifying at African American (56.3%). Most participants demonstrated low literacy levels, which was evidenced by their responses to written questionnaires. The majority of participants listed hypertension as a cardiac risk factor (68.8%) followed by a diagnosis of cardiovascular disease (62.5%).

Measures

Participants were asked to complete all the measures described below on two separate occasions, before session one and at the completion of the fourth session. The questionnaire packet took approximately 45 minutes to complete.

Demographics form and brief medical history. Participants were asked to complete a brief demographics form modified for this intervention. Modifications to the demographics form included a brief medical history which assessed the type of cardiac problems and non-cardiac problems they are having, additional diagnosis (such as diabetes), the number of previous cardiac events they have had, current medications (including medication designed to suppress appetite or reduce smoking, and including dosages and durations) and current Nicotine Replacement Therapy use.

Height and Weight. Participant height and weight was measured at the beginning of each session.

Nicotine dependence. *The Fagerstrom Test for Nicotine Dependence (FTND)* is a 6-item self-report measure of nicotine dependence. Items include, “Do you smoke if you are ill?” This measure has a Cronbach alpha of .61. Although this measure has a lower than recommended

alpha level, previous studies have used this measure to assess nicotine dependence. Scores on the FTND have been predictive of hard measures of smoking, such as saliva cotinine levels. Cotinine is a metabolite of nicotine, which can only be produced by the body when nicotine enters the body by way of cigarette smoke (Heatherton, Kozlowski, Frecker & Fagerstrom, 1991; Payne, Smother, McCracken, McSherry & Antony, 1994; Pomerleau, Carton, Lutzke, Flessland & Pomerleau, 1994). Given these results, the FTND is an appropriate measure for the current study.

Physical Activity. *The International Physical Activity Questionnaire (IPAQ)* is a self-report questionnaire that measures physical activity levels. The IPAQ assesses the number of days per week and the number of times per day an individual spends doing specific activities. The questionnaire consists of 5 categories: job-related physical activity, transportation physical activity, housework, house maintenance, and caring for family activity, recreation, sport and leisure time activity, and time spent sitting. In order for an activity to be reported, 10 continuous minutes must be spent doing the activity.

Dietary adherence. *The Automated self-administered 24-hour dietary recall (ASA24)* is a measure of dietary intake (calories, fat grams, sodium, carbohydrates). It is completed on a secure website. Participants complete the ASA24 on three successive days—two week days and one weekend day. The format and design of the ASA24 is modeled on the interviewer-administered 24-hour dietary recall; which is reported to collect the highest quality and least biased dietary data (NCI, 2010). The ASA24 builds on the work of an existing instrument, i.e., the automated multi-pass method (AMPM) 24 hour recall. The AMPM was developed by the USDA to obtain dietary data for the “What we eat in America” study. Participants are asked to first select a meal they consumed one day prior to the assessment. Second, the participant selects more detailed descriptions of the foods and drinks that made up that specific meal. Lastly, the

participant finalizes their meal descriptions and repeats this sequence for all other meals and snacks for that particular day. For participants without a high-speed internet connection, the ASA-24 can be completed on the phone with a research assistant.

Mindful awareness and acceptance. *The Philadelphia Mindfulness Scale (PHLMS)* is a self-report measure of mindfulness (consisting of mindful awareness and psychological acceptance). The PHLMS assesses levels of mindfulness as defined by two key constructs, present moment awareness and nonjudgmental acceptance. Items are rated on a 5-point Likert scale according to the frequency each item was experienced during the past week. Exploratory and confirmatory analysis support a two-factor solution. Very good internal consistency was demonstrated (awareness subscale alpha=.85; acceptance subscale alpha=.87). Higher scores indicate greater mindfulness (Cardaciotto, et al., 2008).

Physical activity experiential acceptance. *The Physical Activity Acceptance and Action Questionnaire (PA-AAQ)* measures the degree to which a person avoids exercise-related internal experiences. The PA-AAQ was adapted from the Chronic Pain Acceptance Questionnaire (CPAQ) to assess experiential avoidance of exercise-related internal experiences. The PA-AAQ (mean alpha =.79) contains 8 items which are rated on a 7-point Likert scale. Higher scores indicate greater acceptance of internal barriers to exercise (Forman, et al., 2009).

Dietary experiential acceptance. *The Food Acceptance and Action Questionnaire (FAAQ)* is a modified version of the CPAQ and measures the degree to which a person avoids food-related internal experiences. The FAAQ is a 10-item questionnaire rated on a 7-point Likert scale. Cronbach alpha is .79. Higher scores indicate greater acceptance of motivations to eat (Forman, et al., 2009).

Smoking experiential avoidance. *The Avoidance and Inflexibility Scale for Smoking (AIS)* is a 13-item measure designed to evaluate smoker's endorsement of avoidance strategies related to smoking and smoking cessation. High scores on this Likert scale indicate more avoidance of internal experiences related to smoking. The measures reliability is established with Cronbach alpha = .93 (Gifford, et al., 2004).

Experiential acceptance, distress tolerance. Distress tolerance is considered the degree to which an individual is able/willing to tolerate unpleasant physical or emotional states. A breath-holding task was used to measure distress tolerance (R. Brown, et al., 2002; Lillis, et al., 2009). Breath holding has been shown to produce elevated levels of stress. In the *breath holding task*, participants were asked to hold their breath for as long as possible while being timed by a research assistant using a stop-watch (R. Brown, et al., 2002; Lillis, et al., 2009). Each participant was asked to hold his or her breath for as long as possible and to ring a bell when they first get the urge to exhale. After ringing the bell the participant was instructed to continue holding his or her breath through the discomfort and to ring the bell again prior to exhale. This exercise was repeated two times with a one minute break in between trials. The difference between time one and time two, as well as total breath holding time, was considered degrees of distress tolerance. Participants were told that a $10 gift certificate will be mailed to participants who held their breath longer than the average of all participants in the study. The $10 gift certificate has been used in previous studies (Brown, Lejuez, Kahler & Strong, 2002) to give participants enough initiative to continue rather than prematurely stop the task.

Defusion from negative experiences. *The Drexel Defusion Scale (DDS)* is a 10-item scale that assesses the degree of psychological distance from various negative thoughts and feelings. Items are rated on a 6-point Likert scale according to the extent to which one is

typically able to defuse from each type of internal experience. The DDS has been shown to have adequate internal consistency (Crombach's alpha =.83). Higher scores indicate greater ability to defuse from internal experiences (Forman, Herbert, Moitra, Yoemans, & Geller, 2007).

Values and goals clarity. To assess participant's degree of values/goals clarity, an open-ended questionnaire, the *Values and Goals Clarity Measure*, was created. The questionnaire first describes the difference between a value and a goal for the purposes of ACT. Then, participants were asked to respond to the question, "What are the values by which you live your life?" Participants were awarded 0 to 3 points. A score of zero was given if the participant did not list defined goals/values or provided a single-word answer such as "God" or "Retire." A score of 1 indicates that the participant listed a few, broad goals or values (e.g., further education). A score of 2 indicates that the participant listed several specific goals or values but also listed items that were not goals/value. A score of 3 indicates that the participant directly listed goals and values.

A rubric for measuring values/goals clarity was created by subjectively rank ordering participant responses (both pre- and post-treatment) and the creating groupings out of the responses. For example, all participants who provided clear and direct values were ordered at the top of the ranking and then later grouped as a five. The same was done for participants at the bottom of the ranking (i.e., participants who were rated at the bottom of the ranking all had a common one-word response and were subsequently grouped as a zero). Scores 0-3 were determined by evaluating commonalities among proximal responses in the rank ordering. Two graduate students who were blind to time of assessment rated participant responses. Discrepancies were discussed and an agreed upon final score was reported.

Treatment acceptability. To measure participant treatment acceptability, participants were asked at the post-intervention to answer the following two questions on a five point Likert-

scale (1= Not at all, 3= somewhat, 5= Very): “How helpful did you find the strategies (e.g., acceptance, willingness, and defusion) for responding to urges or desires pushing you to make unhealthy choices regarding diet, physical activity and smoking?” and, “How satisfied were you with the approach we used to help you make changes in your diet, physical activity level and smoking behavior?” These items were developed by Forman et al., (2009) for use in assessing participant acceptability to an acceptance-based treatment for weight-loss. There is no psychometric data available for this measure.

Treatment comprehensibility. Self-reported difficulty with ACT concepts was assessed using a five-point Likert scale (where 1 indicates very difficult and 5 indicates not at all difficult) with which participants will be asked to rate their level of difficulty with understanding acceptance, awareness, mindfulness and, defusion at the end of session four. Higher scores indicate less difficulty.

Participant comprehension of ACT concepts was assessed using a free-response ‘quiz.’ The post treatment quiz asks participants to explain their understanding of acceptance, awareness, mindfulness and defusion in their own words and to provide an example of how they can use these concepts in their everyday life. A rubric for grading was established in which higher scores indicate a greater comprehension of the concepts. Each correct answer was worth 20 points, for a total of 100 points. Participants were graded on the extent to which they were able to describe the constructs in the context of the program.

Early termination of treatment. To assess reasons for participant drop-out, all participants who discontinue their participation prior to session four will be asked to complete the Early Termination of Treatment Questionnaire. This questionnaire assesses reasons for discontinuation of treatment among participants. Participants are asked to provide the main

reasons for stopping participation, the extent to which they are concerned about their lifestyle (specific to diet, exercise and smoking) and the degree to which they feel their lifestyle is impacting their heart health. Participants are also asked "How likely do you think it is that you will have a serious cardiac event, like a stroke or heart attack, in the next ten years?"

Assessment Plan

Pre-treatment. Once informed consent was obtained, participants were directed to a secure website where they were asked to complete the ASA-24 three times (two week days, one weekend day) and the pre-treatment questionnaire packet prior to the start of the therapy sessions. During the first session, participants participated in a measure of distress tolerance, a breath holding task. Participants were timed using a stop watch while holding their breath for as long as possible. When participants felt the urge to take a breath, they rang a bell, and continued holding their breath through the discomfort. When the participant is unable to hold his or her breath any longer they rang bell for the second time and then exhaled. This exercise was conducted two times. Participants were told that a $10 gift certificate will be mailed to participants who held their breath longer than the average of all participants in the study. The $10 gift certificate has been used in previous studies (R. Brown, et al., 2002) to give participants enough initiative to continue rather than prematurely stop the task. Participants completed the same questionnaire packet and breath holding exercise at the end of session four.

Code numbers were used to protect the participants' anonymity. Additionally, all data was separated from the consent forms and all hard copies of data collected are kept in a locked filing cabinet.

Post treatment. At the end of the fourth session participants were asked to complete the same packet of questionnaires from session 1 as well as the one treatment acceptability

questionnaire and two treatment comprehensibility questionnaires. Additionally, participants were asked to complete the ASA-24 on two weekdays and one weekend day.

Procedure

Interested participants were accepted into the open-trial based on the inclusion and exclusion criteria specified above. If participants met the set criteria, they were invited to participate in four, 90-minute groups therapy sessions aimed at increasing positive behavior change in diet, physical activity and smoking by demonstrating techniques to help one live a more fulfilling life that is in accordance with their individual values. Participants were told they will receive $20 for completing all assessments.

Informed consent was obtained from potential participants prior to the start of the first session. Patients interested in participating were directed to a research assistant after their appointments to discuss eligibility and informed consent.

Treatment

The aim of the treatment was to help participants become more mindful, learn distress tolerance skills and strengthen their commitment to heart-health related values. The treatment was developed to last four sessions (outlined in Appendix A) and consisted of the following components.

Psychoeducation/ lifestyle guidelines for diet, physical activity and smoking.

Psychoeducation for this project involved teaching heart-specific nutritional, dietary and physical activity information and, behavioral methods for modifying diet and physical activity levels. Participants were provided with specific behavioral techniques for adhering to a heart-healthy lifestyle (e.g., time management and assertiveness, brisk walking schedules, low-calorie,

low-fat recipes, cooking methods to decrease calories). Additionally, group problem-solving was employed on a weekly basis to address difficulties in attaining assigned heart-healthy goals.

Acceptance and Willingness

Participants were asked to discuss previous methods for attaining weight loss, exercise and, smoking cessation goals. Experiences from their previous attempts to adopt a heart-healthy lifestyle were used to help participants identify control-based strategies as ineffective, and provide them with motivation to try an acceptance-based approach. A rationale for accepting previously-avoided internal experiences was presented to participants. Metaphors and exercises were used to help participants realize that feelings do not necessarily need to drive actions. Additionally, participants monitored their weekly goals and their willingness to experience distressing thoughts and feelings related to making heart-healthy lifestyle changes. To increase distress tolerance, participants were encouraged to recognize that distress associated with physical activity, healthy eating and smoking cessation (e.g., physical and mental discomfort, urges to stop exercising, give into cravings or smoke) cannot be suppressed or controlled, and often cause more distress. Participants were taught that increasing one's willingness to experience distressing internal states also increases their ability to engage in wanted behaviors (such as exercise, dieting and not smoking).

Commitment/Values and Goals

Therapists helped participants clarify their values and define their goals. Goals were defined as specific tasks related to living in accordance with their values (a heart-healthy lifestyle). Participants were asked define their life values and discuss potential barriers to reaching individual goals and living in service of their values. Barriers are defined as thoughts,

feelings or behaviors that may impede the successful attainment of individual goals related to heart-healthy living.

Treatment Fidelity

Due to the pilot nature of this study, the treatment manual was strictly adhered to. It was decided that delivery of information consistently across groups was most important. In some instances this strict adherence decreased group discussion and provided a more didactic format.

Power Analysis

To determine the total number of participants needed to reach statistical power, a power analysis was conducted using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). The parameters set for computing power for a paired samples T-test were $p<.05$, $f=.25$. To yield a power of .80, 28 participants were needed for this study. Adjusting for a 40% drop-out rate, 40 participants were recruited to statistically assure treatment completion by 28 participants. However, despite attempts to recruit patients from multiple cardiology clinics through flyers in patient and waiting rooms and recommendations by cardiologists, relatively few (40) patients indicated an interest and only 16 participants completed pre-treatment assessments. Twelve participants completed the intervention resulting in an observed power of .49.

Results

Only one participant reported nicotine use; thus all smoking variables have been excluded from analyses. Also, given the pilot nature of the data and the low observed power, effect sizes[2] are reported for all statistics, regardless of significance of formal parametric analyses.

[2] Effect sizes were calculated using Cohen's $d=(M_1 - M_2)/ \sigma_{pooled}$. It has been suggested that this computation is a more conservative reporting of effect size (Dunlop, Cortina, Vaslow & Burke, 1996)

Descriptive Statistics

Forty cardiology patients expressed initial interest, and 16 participants completed pre-treatment assessments and began the intervention. Participants attended an average of 3.56 sessions (SD=0.89). Treatment completion was high (75%), with 12/16 participants completing the program. Data are not available for patients who expressed interest but did not participate, as baseline questionnaires were not collected prior to session one. The differences between treatment completers (*n*=12) and drop-outs (*n*=4) are listed in Table 2. Overall, the four participants who discontinued treatment weighed less, had an unhealthier lifestyle and were less psychologically minded. Overall, participants reported an unhealthy lifestyle at baseline. All analyses are computed for treatment completers.

Acceptability and Comprehension

Hypothesis One: Project ABLE is associated with moderate to high levels of treatment acceptability and treatment comprehension.

An average score of 4 or greater was defined as representing high acceptability and satisfaction. Thus, the hypothesis was evaluated by determining the proportion of participants who rated acceptability/satisfaction as 4 or greater. Additionally, participants were judged to have strongly comprehended the intervention if their quiz score was above 80% and/or if they self-rated construct difficulty 4 or greater (higher ratings indicate less difficulty). Hypothesis one was largely supported. Participants reported the program strategies, such as acceptance and willingness, to be moderate to highly helpful, with an average rating of 4.17 (*SD*=1.27). Additionally, 75% of participants who completed treatment reported a score of 4 or 5 on the helpfulness question of the Treatment Acceptability Questionnaire. Participants also reported moderate to high treatment satisfaction on the satisfaction question of the Treatment Acceptability Questionnaire: 83.3% of completers rated their satisfaction ratings as a 4 or 5

(*M*=4.33, *SD*=1.23). Acceptability data are not available for the four participants who dropped out. It is presumed that their scores on the Treatment Acceptability Questionnaire would be lower.

Participant comprehension was assessed in two ways. First, participants were asked to self-report on a scale of 1 (very difficult) to 5 (not difficult) their difficulty with comprehending the concepts of acceptance, willingness, defusion, mindfulness and values. Secondly, an objective measure was utilized to assess participants' comprehension of treatment concepts. Participants were asked to define the concepts of acceptance, willingness, defusion, mindfulness and values. On the self reported assessment of comprehension, participants rated the concepts of acceptance (*M*=4.17, *SD*=.72), willingness (*M*=4.08, *SD*=1.16), mindfulness (*M*=4.42, *SD*=1.16) and, defusion (*M*=4.25, *SD*=.97) to be minimally difficult to comprehend. However, on the objective assessment of comprehension, participants appeared to demonstrate much lower levels of construct comprehension. Participants' average score on the quiz was 60.42% (*SD*=34.08) with highest comprehension scores on mindfulness (83.3%) and equal comprehension on willingness, defusion and values (58.4%). Further statistics pertaining to participant acceptability and comprehension are listed in Table 3 and Table 4, respectively.

Data regarding reasons for early termination were also assessed and can be found in Table 5. Participants and interested patients were asked to provide a reason for no longer wanting to participate. Nineteen participants/interested patients agreed to answer the short treatment termination questionnaire. Descriptive analyses indicate that the majority of participants discontinued participation because they were no longer interested in Project ABLE (31.6%, *n*=6), they no longer had time to participate (31.6%, *n*=6), or the weather was not conducive to travel (10.5%, *n*=2). (Every participant chose only one response.) Lack of concern about cardiac health

did not appear to be a prominent reason for discontinuing: none indicated this was a reason and nearly 50% of participants who discontinued participation believed that they had between a 25% and 50% chance of experiencing a serious cardiac event in the next 10 years.

Intervention effects

Hypothesis Two: Project ABLE increases levels of mindful awareness, acceptance and defusion across times.

To test this hypothesis, a paired samples T-test was used to compare mean scores on non-specific and specific acceptance (PHLMS-acceptance, FAAQ, PAAAQ, AIS, breath holding) and awareness (PHLMS-awareness) variables and defusion (DDS) between pre-treatment and post-treatment. *T*-tests comparing pre- to post-treatment scores indicated significant/trending significant and moderate-sized increases in mindful awareness [$t(11)=2.57$, $p<.05$, Cohen's $d=0.43$], FAAQ [$t(11)=2.12$, $p=.058$, Cohen's $d=0.62$] and PAAAQ [$t(11)= 2.19$, $p=.051$, Cohen's $d=.80$], but not in defusion [$t(11)=.57$, $p=.58$, Cohen's $d= 0.23$] or psychological acceptance [$t(11)= -.68$, $p=.51$, Cohen's $d= -0.12$.]. Thus, support for the hypothesis was obtained on three of five measures.

Hypothesis Three: Participants increase their adherence to dietary, exercise, and smoking recommendations from pre-treatment to post-treatment.

To test this hypothesis a paired samples T-test was performed to compare mean change (pre to post) scores on the ASA-24, IPAQ and FTND. Overall, the intervention was effective. At the beginning of treatment ($N=12$), 50.0%, 0% and, 8.3% of participants were at heart healthy levels for calories, fat grams and sodium intake, respectively. At post treatment ($N=12$), 83.3%, 25% and 66.7% of participants were at heart healthy levels for caloric, fat, and sodium intake, respectively. Participants made large improvements from pre- to post-treatment and all

participants lost weight. *T*-tests comparing pre- to post-treatment scores supported hypotheses. Specifically, significant and very large decreases were observed for caloric intake (kcal) [$t(11)=5.39$, $p=.00$, Cohen's $d=1.03$], fat gram intake [$t(11)=4.85$, $p=.00$, Cohen's $d=1.15$] and sodium intake (mg) [$t(11)=5.90$, $p\leq.001$, Cohen's $d=1.63$], and moderate-sized (but nonsignificant) increases were observed for physical activity (METS) [$t(11)=1.31$, $p=.22$, Cohen's $d=0.45$]. Refer to Tables 7-8 for a complete listing of psychological and behavioral results.

Hypothesis Four: Pre-post change scores in mindful awareness, psychological acceptance, defusion and values/goals clarity are correlated with pre-post change scores in measures of physical activity, diet, smoking cessation and weight lost.

To test this hypothesis a correlation using residualized change scores was utilized to examine the relationship between pre-post change scores of psychological variables (mindful awareness, psychological acceptance, defusion and values/goals clarity) and behavioral variables (diet, physical activity and smoking). Residualized change was used rather than simple change in order to control for baseline differences and measurement error associated with repeated measures (Steketee & Chambless, 1992). The hypothesis was partially supported. As seen in Table 9 increases in residual mindful awareness were strongly associated with decreases in fat gram intake. Increases in both awareness and psychological acceptance were strongly associated with decreases in calories and sodium. Lastly, increases in values/goals clarity were very strongly associated with increases in physical activity with large effects. In addition, increases in FAAQ scores were associated with decreases in fat and sodium intake.

Discussion

Acceptability and Feasibility

This pilot study evaluated the feasibility, acceptability, and initial effectiveness of implementing ABBT with patients with, or at high-risk for, CVD. The program was helpful and acceptable to participants and was feasible to deliver. The intervention also had a high (75%) retention rate among participants. This program was successful at delivering psychological and behavioral techniques to increase adherence to heart-healthy living. The results suggest that the use of psychological techniques in this program increased the participants' ability to make the necessary lifestyle changes. Had psychological techniques to deal with the cravings and discomfort that arises with behavior change not been presented the program may not have been as successful.

Additionally, it was important (and received as helpful) to help participants understand the value of heart health. For example, virtually none of the participants understood why it was necessary to engage in aerobic activity (instead of weight lifting, for instance). Furthermore, very few participants knew how to incorporate both healthy and cost-friendly foods into their existing diets. It is important to incorporate psychoeducation into behavioral intervention and presenting only psychological techniques may not be sufficient. Future studies should continue this incorporation and measure participant understanding of heart-healthy living as a mediator of behavioral adherence. Overall, the intervention was considered helpful and acceptable to participants.

However there are aspects, both within and beyond the researcher's control, which may have limited the dissemination of the intervention. Had these problems been addressed (to whatever extent possible) participation among interested patients may have been much higher.

The most difficult problem appeared to not be related to the content of the intervention, but rather traveling to the intervention.

Many participants were recruited from an office located in the center of a major city and were asked to attend group sessions held near this office. However, many participants commute into the city for their cardiac care by way of public transportation (e.g., subway or bus). The inconveniences of public transportation coupled with bad weather severely affected participant attendance. Many participants were unwilling to travel into the city during snow and rain. In fact, a group of 7 participants confirmed their attendance the night before session one. That following day (the day of session 1) it rained, and 6 participants cancelled because of it. Although the location of the group sessions was very central to both subway and bus stops, participants reported travel difficulties. Group sessions held central to both public transportation and patient neighborhoods may increase adherence.

Moreover, the majority of cardiac patients have frequent doctor appointments. This presented as a significant obstacle for scheduling weekly sessions and attributed to some attrition. Future interventions should evaluate the feasibility of an open enrollment group format in which participants can attend groups (which are offered several times a week) at their convenience. Difficulties with the rolling enrollment format would be participant tracking, lack of group cohesion and, developing an effective ABBT protocol. An added benefit of developing a rolling enrollment protocol is a decrease in time between consent and session one. It is hypothesized that first session attendance may increase if groups were available for immediate entry.

Overall, the intervention was feasible, but there were several complicating factors. First, scheduling; surprisingly, many participants preferred mid-day to early afternoon group times. In fact, there were only two groups that were held after 5pm (a time presumed to be preferable for

participants). Several of the participants were retired, on disability, or worked evenings, suggesting that future interventions targeting this population within this particular demographic may benefit most from mid-day group availability.

The time needed to deliver all of the pertinent information to the participants within the proposed time frame (4, 90-minute sessions) was grossly underestimated. Due to this underestimation, many of the group sessions took on a more didactic style which broadly diminished the ability to engage the participants in meaningful conversation/integration of the theoretical constructs with their day to day lives. Low comprehension scores among participants could be attributed to this didactic style. However other confounds probably exist (e.g., education/reading level, ability to adequately express thoughts on paper).

Generally, it appeared that participants were not able to adequately express their thoughts in written form. During open ended written questionnaires, several participants appeared to have extremely low literacy (evidenced by poor spelling, poor grammar, inappropriate word usage and, incomplete sentences). The low level of literacy observed in this group of participants could have confounded several aspects of the intervention: comprehension of concepts, written material to supplement sessions, measures. Although participants reported high comprehension of concepts on the self-report measure of treatment comprehensibility, this was not translated to scores on the objective measure of comprehensibility. This can be interpreted two ways. First, participants may not have been able to express in written form their clear understanding of the treatment concepts. Secondly, participants were not comprehending the treatment material. Additionally, the low level of computer availability and literacy among this population was grossly underestimated. Only one participant reported familiarity and the capability of completed the assessments on line. This underestimation of literacy contributed to a significant increase in

time for the researcher. In conclusion, future studies will need to address/assess the comprehensibility of the program across demographics and the ability to implement the program in brief form. Increasing sessions may benefit both the group leaders and the participant, however, many participants reported not being willing to attend more than the four sessions being offered. Striking a fine balance between the needs of the program and the willingness of the participants to comply will be a difficult task in future studies.

Overall, Project ABLE was feasible and acceptable to participants. The main hurdle was maintaining patient interest, as many participants with completed pre-intervention dietary assessments failed to attend the program. Future programs should evaluate even more convenient venues for delivery, such as holding group sessions in the community, churches, and rolling enrollment. While participants reported the Calorie King® books being most helpful in their weight loss efforts, preliminary results indicate that psychological processes (e.g., mindfulness, defusion) could be playing an integral role in behavior change among a cardiac population.

Intervention Effects

Overall, the intervention appeared to be highly effective. Treatment completers made large improvements from pre- to post-treatment. However, due to self report (e.g., diet and physical activity), these results may be an overestimation of behavioral change. Additionally, in a very brief amount of time, participants lost an average of 2.2% of their baseline body weight (i.e., 0.73%/week, *M* of 0.73kg/week). A previous 12-week weight loss study utilizing ABBT reported a 6.6% reduction (0.55%/week) in baseline body weight (Forman, et al., 2009). Comparably, Project ABLE was able to achieve similar results, in substantially less time than other successful interventions, like the Lifestyle Heart Trial (Ornish, et al., 1998). The Lifestyle Heart Trial reported an average weight loss of 11.9% of baseline body weight over one year (i.e.,

0.23%/week, *M* of 0.20kg/week). Project ABLE also showed comparable decreases in fat grams: Project ABLE reported a 41.6% decrease in fat gram intake, versus an 80.0% decrease in the Lifestyle Heart Trial. Analyses revealed moderate to large pre-treatment to post-treatment improvements in patient adherence to a heart healthy lifestyle.

Additionally, results indicted an increase in nearly all process variables (except psychological acceptance), suggesting that the intervention successfully effected change in processes. These findings are consistent with previous ABBT-based programs for weight loss (Forman, et al., 2009). The largest changes were increases in food-based mindfulness (FAAQ), physical activity-based mindfulness and values/goals clarity. This suggests that increasing one's mindfulness and clarifying one's life goals and values may impact behavioral outcomes.

The small effects found for pre- to post-treatment increases in psychological acceptance and awareness and, defusion could be attributed to inadequate integration and discussion of the constructs during group sessions. In addition, integrating more psychologically-based out-of-session assignments could affect pre- to post-treatment changes. Many participants did not adhere to the thought monitoring aspect of the program. In other words, many participants were willing to monitor their diet and physical activity levels each day, but were unwilling (or unable) to examine (or report examining) their cognitive processes. For example, participants were instructed to discuss any thoughts, feelings and sensations they experienced while making (or not making) heart-healthy choices on a daily basis. The majority of participants did not complete this portion of their heart-health journals. However, in-session discussion suggests that participants were utilizing mindfulness techniques (e.g., reports of "dropping the rope" prior to engaging in physical activity or "letting a craving be there"). Integration of more acceptance-based exercises

both in and out of session may increase mindfulness, defusion and values/goals clarity post-treatment.

Not only did the intervention effect change in theorized mediators, change in these mediators was associated with improvement in outcome variables. These findings suggest that incorporating acceptance-based components may be driving behavioral change among this population. The current results are in-line with previous findings from studies utilized acceptance and mindfulness based strategies to increase behavior change. Tapper and colleagues (2009) reported that the utilization of mindfulness techniques was associated with increases in physical activity and weight loss. Additionally, studies by Reibel and colleagues (2001) and Sullivan and colleagues (2009) report that increases in acceptance increased the likelihood of behavior change. These studies also reported favorable change in outcome variables (such as weight loss, dieting, exercising, etc). The results of this study are promising and lend support to the further examination of an ABBT framework for increasing adherence to a heart-healthy lifestyle.

Strengths and Weaknesses

Project ABLE was the first study to test an acceptance-based behavioral approach to increase adherence to heart healthy behaviors among a cardiac patient population. This program was deliverable to a typically non-compliant population with very low cost to the researcher and participant. Most participants who completed the program were satisfied and found the treatment to be helpful. The program was also able to elicit rather significant changes in lifestyle in a short period of time (3-weeks) for a modest amount of money.

A potential strength and weakness of the program was the group format. While it is more economical to deliver this program in a group format, and participants may gain social support in the process, it is very difficult to account for individual needs. For instance, there were

differences in adherence among group members at pre-treatment. Some patients reported already consuming a low-calorie diet or incorporating physical activity into their day, while other patients were still consuming very high calorie diet and extremely sedentary. Either increasing group times to allow for discussion of individual levels of adherence or individual sessions could increase behavioral change.

A weakness of the project was the large number of participants who expressed interest but did not participate. This could be attributed to low-motivation among patients, lengthy questionnaires, wait time between consent and the start of sessions, or a time intensive run-in period. However it is important to note that the total number of interested patients and recruited participants may have been drastically lower had the researcher not actively approached potentially eligible patients. Although, early termination assessments indicate the main reason reported for discontinuation of participants was low motivation.

Another weakness of the study was the use of self-report measures and the use of measures that have not yet been validated (values/goals clarity and FAAQ). The use of validated measures would have provided a more proper analysis of change in process variables. Additionally, assessing the degree to which changes in lifestyle resulted in changes in cardiovascular outcome would have provided implications toward treatment success—future studies with long-term follow-up may provide these data.

Implications and Future Directions

Many cardiac patients do not adhere to a heart-healthy lifestyle. This program was successful at increasing adherence among a very high-risk, low-motivated population. Despite a small sample size and few significant findings, Project ABLE was successful at improving patient adherence to heart healthy lifestyles. All patients lost weight, with a participant weight loss range

from one-half pound lost to 14 pounds lost. Additionally, all patients improved their diets and increased their physical activity.

Future studies should target the low-motivation factors associated with pre-treatment attrition. Suggestions for targeting patients with extremely low motivation to attend treatment sessions consist of providing group sessions with in the patient community (e.g., at community centers and churches), utilizing individual sessions by telephone/videoconferencing (to provide both individualized treatment and increase patient attendance), targeting patients while in-patient and post-MI. It is hypothesized that targeting patients directly after a heart-attack and providing weekly phone follow-up sessions will increase adherence to lifesaving behavioral changes among low-motivated patients.

Programs should also be cognizant of food costs and develop interventions with this in mind. Many of the Project ABLE participants reported that a barrier to healthy eating was cost and time in preparation of healthier foods. Anecdotally, many participants did not know how to cook healthier foods (broiling instead of pan-frying) or had thought of time-saving preparations of food (cook in bulk and freeze foods for constant supply of healthy food alternatives). By providing explicit and specific changes that participants can make to their current diets, the participants felt that the change was more manageable.

Future studies may also examine more exposure-based treatment regimens. For example, ABBT for social anxiety utilize exposures to practice monitoring (i.e., noticing thoughts, psychological acceptance, defusion). The utilization of exposures may increase both behavioral and psychological change. For example, participants can practice willingness to exercise while walking on a treadmill or, practice willingness for portion control while making “mock-food” choices.

In conclusion, this study was successful at increasing adherence to a heart-healthy lifestyle. Moreover, the study provides preliminary support of distress tolerance techniques to improve cardiac health. The majority of cardiac patients have at least one modifiable risk factor, that if changed could significantly decrease cardiovascular morbidity and mortality (American Heart Association, 2009; Cobb, et al., 2006). Interventions targeting adherence to cardiac lifestyle recommendations may be improved by incorporating ABBT components.

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Table 1. *Demographic Data*

Age	Mean (SD)
Range: 32-73 years	*M*=56.42, (12.72)
	Percentage
Gender	
Male	31.3
Female	68.8
Ethnicity	
African American	56.3
Asian	0.0
Caucasian	31.3
Haitian	6.3
Hispanic	6.3
Employment	
Full-time	43.8
Part-time	12.5
Occasional	0.0
Disability/SSI	25.0
No income	0.0
Retired	18.8
Relationship Status	
Single (no current romantic partner)	12.5
Divorced	6.3
Widowed	12.5
Married/living with partner	56.3
Not living with current partner	12.5
Cardiac Risk Factor	
Cardiovascular disease	62.5
Diabetes + obesity	37.5
Hypertension + obesity	68.8
High Cholesterol + obesity	37.5
Smoking Status	
Non-smoker (past and present)	30.0
Non-smoker (current), past smoker	50.0
Current smoker	12.5

Table 2. *Baseline Differences in Treatment Completers and Non-completers*

	Dropout M (SD)	Completer M (SD)
Weight	215.00 (56.44)	223.30 (39.59)
Fat	85.11 (19.02)	77.80 (32.05)
Calories	2232.61 (367.47)	1778.21 (580.02)
Sodium	4698.46 (1192.26)	3378.24 (1087.18)
PA	2097.38 (1783.28)	3946.29 (7025.97)
PHLMS acceptance	25.50 (3.10)	33.83 (6.41)
PHLMS awareness	33.00 (4.16)	34.75 (6.27)
Values/goals Clarity	1.67 (1.53)	1.90 (1.10)
DDS	23.50 (9.98)	24.58 (7.56)
FAAQ	57.75 (8.62)	47.83 (12.65)
PAAAQ	17.00 (2.94)	25.08 (5.30)

Table 3. *Treatment Acceptability*

	M	*SD*
How helpful did you find the strategies (e.g. acceptance, willingness, and defusion) for responding to urges or desires pushing you to make unhealthy choices regarding diet, physical activity and smoking?	4.17	1.27
How satisfied were you with the approach we used to help you make changes in your diet, physical activity level and smoking behavior?	4.33	1.23

Table 4. *Treatment Comprehensibility*

		M	*SD*
Difficulty: Acceptance		4.17	.72
Difficulty: Willingness		4.08	1.16
Difficulty: Mindfulness		4.42	1.16
Difficulty: Defusion		4.25	.97
	% score		
Comprehension: Acceptance*	43.8	8.75	9.56
Comprehension: Willingness*	58.4	11.67	10.30
Comprehension: Mindfulness*	83.4	16.67	6.51
Comprehension: Defusion*	58.4	11.67	9.13
Comprehension: Values*	58.4	11.67	8.62

* Out of 20 total points

Table 5. *Reasons for Program Discontinuation*

	Percent (N=19)
"I didn't want help from this program"	31.6
"I don't have time"	31.6
"The weather was not nice"	10.5
"There were too many questionnaires"	5.3
"I joined another program	5.3
"I/family member fell ill"	10.5
"I had a heart attack while waiting for groups to start"	5.3

Table 6. *Means and Standard Deviations of Participant Concern Over Cardiac Health*

	M	*SD*
Concerns about current diet and effect on heart (N=16)	8.13	2.75
Extent diet is impacting heart health (N=16)	7.75	2.70
Ability to make diet changes on own (N=14)	7.00	2.54
Concerns about current exercise level and effect on heart (N=16)	7.88	2.28
Extent exercise level is impacting heart health (N=16)	8.06	1.98
Ability to make exercise changes on own (N=14)	7.71	2.43
Concerns about smoking status and effect on heart (N=3)	10.00	0.00
Extent smoking is impacting heart health (N=3)	9.33	0.58
Ability to quit smoking on own (N=3)	7.67	4.04
Concern about heart health, broadly (N=13)	9.38	1.56

Note: Participants were asked to answer how they felt about the above areas and rate their feelings on a scale of 1 to 10, with 1 being not concerned/not able and 10 being very concerned/very able.

Table 7. *Participant 10 Year Prediction of Cardiac Event*

(N=15)	Percent
Less than 1%	20.0
Less than 5%	6.7
Less than 10%	0.0
Less than 25%	20.0
Between 25% and 50%	46.7
50% or greater	6.7

Table 7. *Means, Standard Deviations*

Measure	***M***	***SD***
Psychological Variables **(N=12)**		
DDS		
Pre-treatment	24.58	7.56
Post-treatment	26.33	7.82
PHL-MS(Acceptance)		
Pre-treatment	33.83	6.41
Post-treatment	33.00	7.31
PHL-MS (Awareness)		
Pre-treatment	34.75	6.27
Post-treatment	37.75	7.56
FAAQ		
Pre-treatment	47.83	12.65
Post-treatment	54.50	8.32
PA-AAQ		
Pre-treatment	25.08	5.30
Post-treatment	28.42	2.68
Values/Goals Clarity		
Pre-treatment	1.85	1.14
Post-treatment	2.54	.82
Behavioral Variables **(N=12)**		
Calories (kcal)		
Pre-treatment	1778.21	580.02
Post-treatment	1255.21	421.05
Fat (grams)		
Pre-treatment	77.81	23.05
Post-treatment	45.44	23.68
Sodium (mg)		
Pre-treatment	3378.24	1087.18
Post-treatment	1869.24	729.12
FTND (N=1)		
Pre-treatment	6.00	
Post-treatment	2.00	

IPAQ (met/mins per week)		
Pre-treatment	3946.29	7025.97
Post-treatment	12397.79	20899.86
Weight		
Pre-treatment	223.34	39.59
Post-treatment	218.48	37.80
BMI		
Pre-treatment	35.61	7.84
Post-treatment	34.87	7.73
Distress Tolerance (breath holding task)		
Pre-treatment		
Time to subjective distress	00:30.17	00:19.31
Time to exhale	00:38.08	00:16.85
Post-treatment		
Time to subjective distress	00:42.72	00:30.65
Time to exhale	1:00.16	00:31.55

Table 8. *Pre-Treatment to Post-Treatment Change Scores and Effect Sizes*

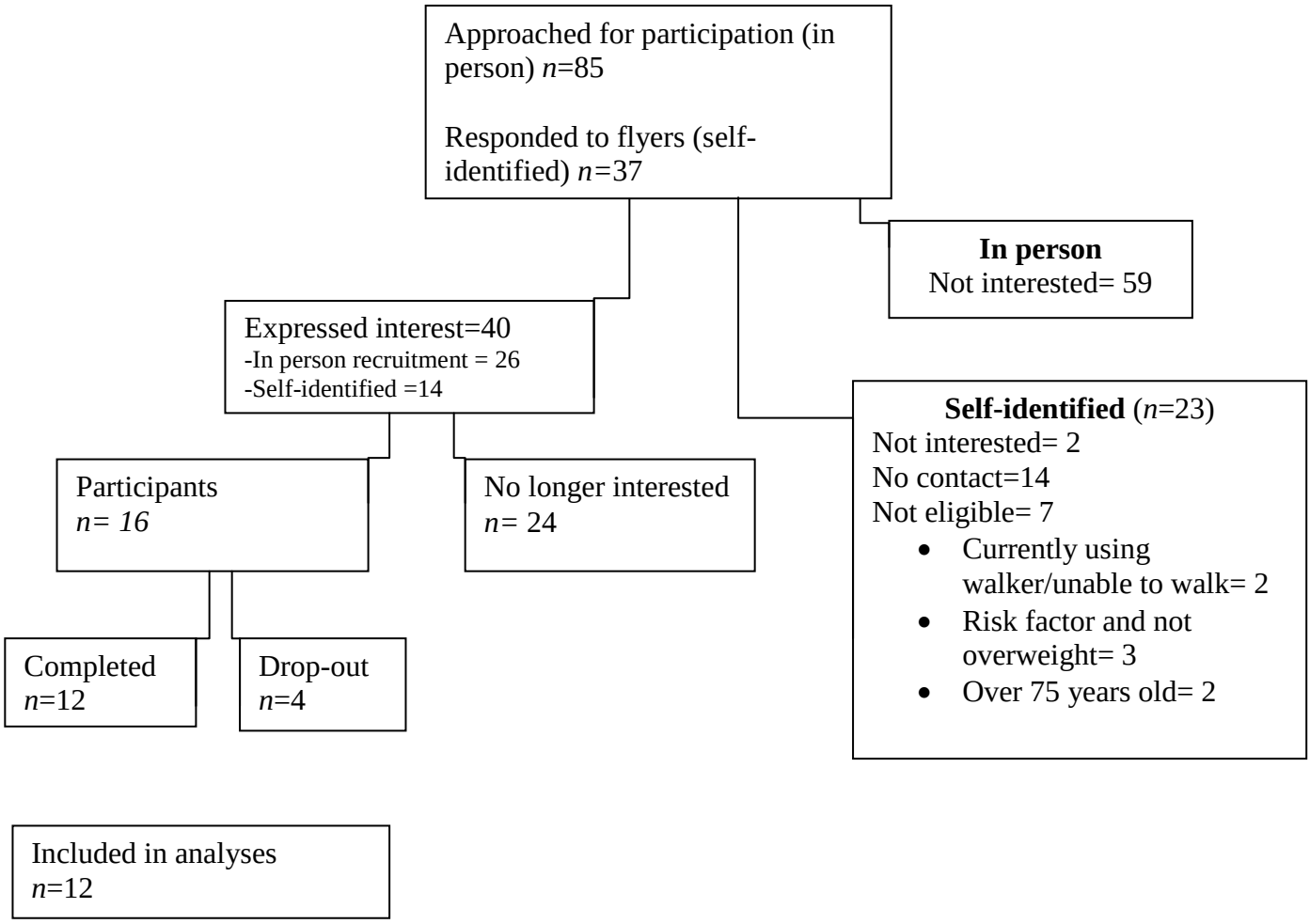
Measure	M_{change}	***SD***	**ES (d)**
***Psychological Variables* (N=12)**			
DDS	1.75	10.65	0.23
PHL-MS(Acceptance)	-0.83	4.26	-0.12
PHL-MS (Awareness)	3.00	4.05	0.43
FAAQ	6.67	10.92	0.62
PA-AAQ	3.33	5.26	0.80
Values/Goals Clarity	.44	1.33	0.33
***Behavioral Variables* (N=12)**			
Calories (kcal)	-523.00	335.85	1.03
Fat (grams)	-32.37	23.13	1.15
Sodium (mg)	-1509.00	886.78	1.63
IPAQ (met/mins per week)	8451.5	22341.33	0.54
Weight	-4.85	4.94	-0.13

Table 9. *Correlation Coefficients of Residualized Change Scores (Pre-treatment to Post-Treatment).*

	Calories (kcal)	Fat (g)	Sodium (mg)	IPAQ Total (METS)	Weight (lbs)
DDS	*-0.18*	***-0.382***	0.001	*-0.165*	0.087
FAAQ	*0.175*	**0.351**	**0.290**		
PHLMS-Acceptance	***0.407***	*0.138*	***0.424***	***-0.422***	*-0.116*
PHLMS-Awareness	***0.418***	***0.579***	***0.639***	0.087	*-0.139*
PAAQ				*0.150*	*-0.176*
Values/Goals Clarity	*-.124*	0.086	-.038	***0.780***	-0.047

Cohen's guidelines for effect sizes utilized: *Small* effect size, *r*=0.1-0.23,**Medium** effect size, *r=0.24-0.36, **Large*** effect size, *r*=0.37 +

Figure 1. *Recruitment flow chart*



Appendix A

Project ABLE
Session 1

Topics addressed: Problems with living healthily, expectations of group members, creative hopelessness, treatment as offering something new, heart healthy living, relationship between goals and cardiac health (fats, sodium, serving size, physical activity), how to record/monitor food, limitations of control, acceptance as the alternative to control.

Materials:

Attendance Sheet
Weekly journals
Diet/PA pamphlets
Sample journal
Chocolate candy bar
Name tags
Ink pens
Cereal bowls
Cereal
Measuring cups
Measuring spoons
Breath holding materials for pre-tx assessment
Stopwatch, sign, bell, protocol.
Scale (access to room with scale)

1) Welcome and introductions
   a) Introductions (leaders)

      Welcome participants and thank them for participating in all of the pre-treatment assessments and for joining the program.

   b) Session 1—Overview

      Let's talk about the topics we will cover in tonight's session. First, it would be great to get to know one another so we will spend some time on introductions. We will talk about what it means to be a part of a group. We will also discuss other important topics tonight, like lifestyle goals, how to monitor your eating and activity and heart healthy living.

   c) Group Member Introductions
      Going around the room, ask group members to introduce themselves and share information about some of the benefits they expect to gain from the program. You might want to list and discuss the participant's responses regarding how they hope to benefit from the

program. Discuss commonalities among participants and try to draw connections between people.

Let's take a little time to get to know one another. Let's go around the room and have everyone introduce themselves and describe what you hope to gain from participating in the program.

2)Problem with Living Healthily

Living healthily is hard to do! If it was not so difficult to change our diet and to exercise more, we wouldn't be here today! The difficulties with living healthily are that it's hard to get started, and even harder to maintain the changes we want to make. Think about all of the techniques and tricks you've tried to lose weight, change your diet, or stick to an exercise routine. What are some of the tricks and techniques you've tried before?

Did any of them work? What was difficult about them?

We're human, we get bored, we lose motivation, we don't like to feel uncomfortable and, we have cravings! Sometimes we lose sight of the big picture.

3)Why this program is different?

As part of this program you will learn what changes are most important to make to your diet and physical activity levels. In other words, which changes will lead to the most improvement in the health of your heart and arteries.

Not only will this program tell you what behaviors you need to change to optimize the health of your heart, it will help you learn HOW to do it (make changes). Study after study has established that it is very difficult to make permanent lifestyle changes and that just knowing the facts isn't enough to elicit change—i.e., WHAT to do is not enough, you need to know HOW to do it
Our program is based on the science behind what makes it psychologically difficult to live more healthfully.

It teaches proven psychological strategies to cope with the challenge of improving our health behaviors.

For example, there are a lot of foods that we know are unhealthy for our heart, but we eat them anyway. One reason we eat them is because we are bothered by cravings to eat them until we finally <u>just do</u>. Is there a way to cope with cravings in a way that means we don't have to give in to them? Yes! -and this program will teach you how, along with many, many other psychological strategies to move you towards a heart healthy lifestyle.

Now, before I move into the main topics for today, I want to go over some of the formalities of the research study.

4) Expectations

a) Confidentiality

We ask that you respect the need for confidentiality. Our treatment is delivered in a group format. Much of what will be shared is of a personal and sensitive nature. What happens in the group, stays in the group. Please do not share what you hear with anyone outside of the program.

b) Respect for other's opinions

We ask that you respect each other's point of view. Each of you has something important to add so please respect each other's opinions.

c) Promptness

Please arrive on time, as we will start groups on time. We have a large amount of information we'd like to share with you and a very limited time to do it in. If you are late, you're going to miss important information.

d) Attendance.

Contact us if you are going to miss a meeting. Especially given that this program is only 4 sessions, it is very important that you attend every meeting. If you believe you will need to miss a session, please immediately contact one of the staff members. [*Provide number to call: 757-572-3722 and email: clg46@drexel.edu*.]

e) Structure of the Program

We will meet weekly for 4 weeks.

f) Weekly assignments

You will also be asked to complete out-of-session assignments such as recording your daily diet and amount of physical activity you did. Completing these assignments is necessary in order for you to receive the maximum benefit of the program.

5) **Creative Hopelessness**

Ask the group to recall some of the struggles they have previously experienced regarding living a more heart healthy lifestyle.

So, what are some of the struggles you have previously experienced with making changes to your lifestyle?

What did you try? Has it worked? Why hasn't it worked? Why not? What worked at first, but eventually did not? Why did success decrease over time?

Note to therapist: Look for instances in which people are mentioning trying to force themselves to have more willpower or control over hunger/cravings/desire for food. Also, if not mentioned, ask about weight loss programs (e.g. Weight Watchers). Was it the program itself? Were you able to follow the program? *The goal is to solicit that it is not the plan/program itself but rather the difficulty in implementing the prescribed weight loss behaviors.*

Is some part of what we are trying to accomplish hopeless?
Is there a completely different way to approach the problem?

6) Treatment as offering something new

Traditional programs focus on making behavioral changes to elicit changes in diet and exercise. Our program will focus on this, too. However, these traditional programs do not address the negative and distressing feelings and thoughts that arise in the midst of making these behavioral changes. Often these internal experiences are what make behavioral change so difficult. Our program will address these negative internal experiences (such as frustration and deprivation).

Note to therapist: Create expectation that treatment will work, despite inherent difficulties in short-term and especially long-term. More than willpower – new way of coping with urges go back to unhealthy behaviors.

7) Heart Healthy Living (Handout pamphlet: "Eating a Heart Healthy Diet")

Now, let's discuss heart healthy living. A heart healthy diet has three exceptionally important components. Who knows what these are?

Low fat, low calorie, low sodium diet
30 minutes a day of moderate physical activity
No smoking

The American Heart Association recommends a diet that is low in fat, calories and sodium, 30 minutes of moderate physical activity each day, and no smoking.

Most of you are already not smoking, which is terrific, so we are going to focus on diet and physical activity. If you are smoking, please know that almost every strategy that we teach you will be applicable to your attempt to stop smoking.

As part of this program, we ask that everyone set the following goals:

A 1500 calorie a day diet
A diet of 33 grams of fat or less per day
A diet low in sodium, not to exceed 2,300 mg of sodium each day.
A brisk walk almost every day

Walk briskly for 15 minutes a day, four times a week (week one)
…20 minutes a day, four times a week (week two)

…25 minutes a day, five times a week (week three)
…30 minutes a day, five times a week (week four)

8) Relationship between goals and cardiac health
   a) Increased calories lead to overweight and obesity

Your weight is determined by the balance between the energy you take in (food) and the energy you expend (movement). When your calorie intake and energy expenditure are balanced, your weight remains the same. If you take in more calories than you expend, you will gain weight. To lose weight, you must create an energy imbalance. This can be accomplished by eating fewer calories or by exercising more. The best method is to do both.

Being overweight or obese harms the heart and heart vessels by
-Raising LDL ("bad" blood cholesterol and triglyceride levels. (a major risk factor for coronary heart disease, heart attacks and strokes)
-Lowering HDL ("good") cholesterol
-Raising blood pressure
-Increasing risk of diabetes, which is link to heart disease/heart attacks

Foods that are particularly high in calories include: any fast food, many restaurant foods (try dining in, it's healthier AND saves money!), anything fried, and sweetened foods and drinks (such as candies, non-diet soda, fruit juices and cocktails. Look on the label for high fructose corn syrup, an indicator of sweetened foods with high calories.

****Serving size****

One of the most important things to pay attention to is serving size. First, to help you see how important measuring your food is, I'd like to do a little demonstration.

[Pass out bowls and pass around boxes of cereal, ask participants to pour the amount of cereal they usually eat]

Now, I'd like for everyone to pour the amount of cereal that they usually eat in to the bowl in front of you.

So it looks like we have several different "serving sizes!" Now, with the measuring cups, I'd like for us to actually measure the amount of cereal is in one serving of cereal.

[Note the difference in portions]

This is why it is so important to measure the amounts of food we eat! (Continue on to explain the importance of portion control and its relationship with maintaining a heart healthy lifestyle.)

   b) Fat (animal fats, butter, margarine, oils)

First, let's talk about fat…

Fats are the energy nutrient that you should pay the most attention to for heart health.

Fats are high in calories, which mean they contribute the most to weight gain.

Saturated fats are particularly bad for you, and are found in dairy products and meat. Saturated fats raise LDL and lower HDL

Trans fats do the same. They are often found in commercial and restaurant foods, such as cookies, crackers, cakes, French fries, onion rings, donuts.

It is important to begin identifying high fat foods so that you can learn to make healthy food choices.

There are certain foods that you should avoid: Anything fried, liver, gizzards, dark meats, pate, cooking with lard, egg yolks, cheese, whole milk, cakes, cookies, doughnuts, etc.

These foods are preferred: Low fat healthy food choices include the following: Baked or broiled lean meats, fish, skinless chicken, fruits, vegetables, beans, whole grain breads, cereals, and low fat dairy products.

Warning about fat-modified foods:

There are now over 5000 fat-modified foods on the market. While these foods are lower in fat, they may not necessarily be lower in calories. Be careful to check both the calories and fat grams and make good decisions about whether to include these foods in your diet.

How to meet your goals regarding FAT intake.

Trimming all of the visible fat from foods before cooking is an easy way to cut down on your fat intake.

And opt to broil your meats instead of pan frying them.

Example: Use a broiling pan with a rack in the oven to drain off fat while broiling, roasting and baking. If you are worried about your meats becoming dry during cooking, trying basting them with wine, fruit juices or acceptable "heart-healthy" oil based marinades instead of pan drippings (just be sure to check the sodium and sugar content)!

You can also decrease the amount of fatty foods you consume by choosing seafood twice a week.

Example: Some fish is high in fat, but are all low in saturated fat. Broil or grill your fish with fresh herbs and fruits instead of pan-frying.

Also selected fat-free, 1% and low-fat dairy products. It makes such a big difference! Look at the difference between whole milk and skim milk!

Whole milk:

-149 calories
-73.35 fat calories
-8.15 grams of fat
-33.18mg cholesterol

2% milk *(doesn't mean 98% fat free!)*

-121.2 calories
-42.6 fat calories
-4.68 grams of fat

1% milk:

-102.15 calories
-23.28 calories from fat
-2.59g of fat

Skim, non-fat milk

-86.45 calories
-4 calories from fat
-0.445 grams of fat
-0.289 grams of fat
-4.45 mg cholesterol

c) Sodium (salt)

Raises blood pressure, which makes the heart work harder, which can lead to an enlarged, weakened heart, which results in heart failure.

Increase blood pressure also increases you risk for heart attacks, strokes, kidney failure, eye damage, congestive heart failure and fatty buildup in the arteries.

High blood pressure hurts the arteries and arterioles (the small connective arteries) which lead to scarring and hardening of the arteries. When this happens, the heart can't supply enough blood to your body's organs.

There are certain foods that you should avoid because they are so salt laden → which can cause increased blood pressure → leading to increased damage to your heart. These items include gravy, soy-based sauces, breaded foods, many seasonings (such as Ms. Dash, grill seasoning, seasoning salts). Also, sea salt is still considered salt, and should be avoided.

Instead of using salt on your food, use a salt replacement (potassium chloride salts), such as No Salt or Mortons Salt-substitute. Or add flavor to your foods by using fresh or dried herbs and peppers. Eliminating salt from your food isn't necessarily eliminating flavor if you make these heart-healthy substitutes.

Ask for questions/comments/concerns

To help lower your sodium intake, take the following steps:

1. ***Compare.*** Compare the sodium content of similar products and choose the one with less sodium.
2. ***Reduced Sodium. Choose frozen foods, soups, cereal and other products labeled "reduced sodium."*** Also, steer clear of canned vegetables and opt for fresh or frozen instead, they usually have less sodium.
3. ***Remember the condiments.*** Limit high-sodium condiments such as soy sauce, hot sauce, steak sauce, Worcestershire sauce, pickles and olives.
4. ***Keep the flavor.*** Replace salt with herbs and spices and salt-free seasonings. Use lemon juice, citrus zest and hot peppers to add flavor.
5. ***Rinse it.*** Try rinsing certain foods, such as canned tuna, salmon, feta cheese and capers to remove excess sodium.
6. ***Pre-packaged foods.*** Steer clear of pre-packaged foods than come with seasoning packets, such as Ramen noodles, instant potatoes, and mac-n-cheese. These seasoning packets are laden with salt.

d) Physical activity (movement; work; exercise)

One of your goals for this program is to become more physically active. You can accomplish this by following the brisk walking schedule we gave you earlier.

I want to emphasize some of the benefits of physical exercise:

Improves energy balance and helps you lose and maintain lost weight.
Strengthens the heart muscle
Lowers blood pressure
Reduces triglycerides, weight loss/maintenance
Increases LDL (good) cholesterol
Reduces risk of diabetes
Makes you less likely to smoke.

How many of you have been physically active in the past (meeting the AHA guidelines)? What helped you maintain these behaviors?

For those of you who haven't made/maintained physical activity levels, what made it difficult for you?

NOTE: Make note of some of the difficulties to use later in the session. Reassure participants that we will provide them with ways to help them make these changes.

Barriers to being active.

One of the barriers to physical activity that many people bring up is time. How can you find time to exercise?

[Elicit responses from group and write on board, if necessary]

Set aside one block of time every day for planned activity. Make being active a predictable part of your daily routine, like taking a shower may be a predictable part of your morning.

Look for short periods of free time (at least 10 minutes) during the day. Use the time to be active. For example, walk during your coffee break, for part of your lunch hour, and/or between meetings at work.

Park further away from the store or where you work. Make it a habit to park far enough away so that it takes you at least ten minutes to walk to the store or to your place of work.

At the end of our session today, we will all fill out an activity plan together so that everyone will have a plan for reaching their activity goal this week.

Below is information included in the handout
Here are some tips to help you get started and help you maintain an exercise routine:

-Wear comfortable clothes and sneakers or flat shoes with laces.
-Start slowly. Gradually build up to at least 30 minutes of activity on most or all days of the week (which is what we have planned out with this program).
-Exercise at the same time of day so it becomes a regular part of your lifestyle. For example, you might walk every Monday, Wednesday, Friday and Saturday from noon to 12:30 p.m.
-Drink a cup of water before, during and after exercising.
-Ask family and friends to join you — you'll be more likely to stick with it if you have company. Or join an exercise group, health club or the YMCA. Many churches and senior centers offer exercise programs too.
-Note your activities in the log we've provided. Write down the distance or length of time of your activity and how you feel after each session. If you miss a day, plan a make-up day or add 10–15 minutes to your next session.
-Use variety to keep your interest up. Walk one day, swim the next, then go for a bike ride on the weekend.
-Look for chances to be more active during the day. Walk the mall before shopping, take the stairs instead of the escalator .
-Don't exercise right after meals or when it's very hot or humid.

9) Food Record

Will someone share with the group what you thought of keeping track of your food intake prior to starting the program?

Did you notice anything about your eating habits that you had not noticed before?

Research has shown that keeping track is the key to losing weight and being more active. Today we will discuss keeping track in general. Today you will learn to record what you eat and your physical activity.

By keeping track of what you are eating, you will learn how much you are actually eating and the calorie and fat content of different foods.

During each group you will turn in these booklets *(hold up booklet)**. These will be reviewed by the study staff and the staff will comment on your progress. It is very important that everything you write down is accurate and honest.***

During the next week you will record:
Everything you eat and drink
All of your physical activity

These booklets have enough space for you to keep 7 days of information. Here are some tips for using the book.

How to record information:

Write down each food and drink you have throughout the day/week. Write down the time you eat the food, the amount, and name of the food or drink and a description.

I want to emphasize, spelling is NOT important. You can make up abbreviations or use your own shorthand if that makes it easier and faster for you to keep track. Just make sure you and I both know what you mean.

What IS important is to:

Be accurate: Please measure your portions and read labels.

Be complete: Please include everything, even snacks, condiments, water, candy, and gum. Be careful to include everything and write everything down carefully so we will be able to identify areas where you might be willing to make changes that will result in improved heart health.. Not only will this help you be more aware of what you are eating but this will also help us tailor your diet intake changes to you.

To keep track of your activity:

Explain that the type and amount of activity is important and activity of less than 10 minutes should not be counted.

In the appropriate section of each page in the book, write down the kind of activity you do and your minutes of activity.

Research has shown that physical activity in bouts of 10 minutes or more can help you with both your weight loss efforts and increasing your fitness. Therefore, we count bouts of 10 minutes or more. If you take a break during your activity say, to use the restroom, this time should not be included as time being active. Any questions?

Show a sample booklet to the group using <u>calorie king</u> books.

10) Why making change is difficult

We know that it is hard to change.

Habits are especially difficult to change because they happen without your awareness (such as eating in front of the television, or having a soda at work at the same time every day.

We are hard-wired to find certain foods very tasty because over many hundreds of thousands of years, we needed nutrients from those foods. The foods we find the tastiest are sugars, fats and salts. So, we are biologically driven to love to eat and to seek out sweet, fatty and salty foods.

However, in modern life, we get far too much in the way of nutrients. And with an endless supply of every type of food around us, our biological drive results in us eating far too much sugar, fat and salt.

Short-term versus long-term mind – Short-term pleasure is more salient/apparent than long-term negative consequences of making unhealthy food choices

Same idea when it comes to rest versus vigorous activity. For the most part we are hard-wired to want to conserve energy. The desire to be still in the moment is more powerful than the long-term negative consequences of not exercising enough.

In response to this environment, we will constantly experience strong desires to find and eat food, especially tasty food which means fatty and salty and sweet food.

Another reason that people may continue to engage in unhealthy behaviors is that feelings of boredom, sadness, stress and worry (aversive internal states) could lead us to use eating to make us feel better. We don't like to feel bad, and eating makes us feel good!

Low motivation. ***Another reason people may continue to engage in unhealthy behaviors is that we aren't motivated. We don't have good enough reasons to change, or we have them but they recede to the background. Or we don't fully believe in these reasons. Maybe they are abstract. Maybe we've never made a true commitment to make change.***

Acknowledge that making changes in diet and exercise is going to be challenging and unfortunately we cannot make these things [challenges] go away. Instead, the goal of this program is to help them meet those challenges successfully, in other words to make the

behavioral changes that are required for heart healthy living and to cope with the difficulties that they will likely experience when they try to make these changes.

This program is not designed to make these challenges go away. They're going to be there. Instead, the goal of the program is to help you meet your goals successfully—by making behavioral changes that are required for heart healthy living, and to cope with the difficulties you are likely to experience when you set out to make these changes.

11) Limitations of control

Earlier you all came up with a list of what techniques have not worked in your efforts to live a heart healthy life." Or "Why haven't you been able to make changes to your lifestyle?

Who can name a health behavior change that you have been trying hard to change, but still haven't achieved lasting change? In this case, it is not for lack of trying that these techniques have been unsuccessful!

Blue Ribbon Metaphor

If we were giving away prizes for effort, everyone would get a blue ribbon!

Perhaps it is not the lack of effort that is the problem in heart healthy changes, but that somehow the "formula" for accomplishing heart healthy living is flawed.

Chocolate Candy Bar exercise [Reference 'Chocolate Cake Metaphor]
[place candy bar in the middle of the table]

Let's think about this chocolate bar for one minute. Think about the color. Think about how it smells and how it tastes. Think about what it feels like and what the textures are like when you chew it up and swallow it. Ok, now let's do the opposite. Let's completely stop thinking about the chocolate bar. For the next minute, do NOT think about what it looks like, tastes like, feels like etc. [Silence for one minute]

Did you think about it?
[*Note: If they say I thought of something else, respond with "how did you know you didn't think about it?"* "When you tried to not think about this candy bar, what were you doing (in your head)? You were trying to think of other things to distract you from thinking about this candy bar? And if you were able to distract yourself from thinking about this candy bar, you still knew that you were distracting yourself (from this candy bar)!"]

Polygraph Metaphor

I think we have another way that will help demonstrate the limits of control. Imagine you are hooked up to perfect anxiety-reading machine and someone tells you that if your anxiety goes above a certain level you will be given and very painful electric shock. Would you be able to stay calm? How does this connect to you and the strategies that you have been using?

How do these metaphors sit with you? How do these metaphors relate to your past attempts at making heart healthy changes?

Note that this metaphor illustrates that even when they have every incentive to control anxiety (even more incentive than losing weight and exercising) they still can't control your feelings of anxiety.

What would happen if you were told that the machine could read your thoughts and would shock you if it detected that you thought of food?

Ironically, the more we try to control thoughts and images, such as the chocolate candy bar, or feelings (polygraph), the more we experience them.

Demonstrates that trying to control distressing experiences, especially in important situations, isn't effective.

12) Acceptance as the alternative to control

If control is not the answer, then what is? Let's look at another metaphor.

Imagine that you are on a cliff. You are in a tug-of-war with a giant gross looking monster. The monster is on another cliff and between you is a deep chasm. Both you and the monster are determined to win the tug-of-war. He pulls, you pull harder and vice-versa. You are tired and exhausted.

What does this monster represent? The chasm?–Field answers

The monster represents troublesome internal experiences, like your cravings and feelings of discomfort, they are trying to pull you and you are trying to pull away from them; constantly trying to pull and pull so that you don't get dragged into pit. The monster is the nasty feelings, including frustration with dieting, exercising .The tug of war = the constant struggle with the food and exercise.

What is the alternative? – The alternative is to drop the rope. This means sitting with ones thoughts and feelings and not struggling with them.

What is the cost of dropping the rope? –The monster is still there bothering you. It might not always be pleasant

What is the benefit of dropping the rope? – You are free to engage in the behaviors you choose to without having to first get rid of certain thoughts or feelings.

Utilize "**Quicksand"** metaphor (if not understanding tug-of-war)

If you are in quicksand, you're natural inclination is to struggle, to push the sand away to get it off of you, but the more you struggle the more you get pulled down (it's like a vacuum that sucks you down). If you fall in the quicksand, the only way to keep yourself from drowning is to do the opposite of what your natural inclination is to do; that is, you need to lie flat and still so that you have a larger surface area.

Compare the struggle with the quicksand with the struggle with unwanted thoughts and feelings.

Clearly make the distinction between behavioral control (which they have control over, within physical limits & learning history), and experiential control (which they have minimal, if any, control over, especially for high stakes situations).

Importance of focusing energy on what works (behavioral control) and not what doesn't (experiential control).

We will help you learn to stop struggling with your distressing internal experiences—freeing up valuable energy. You can then redirect your resources toward following through in specific actions that will enable you to meet your heart-healthy behavioral goals.

13) Homework

Explain that homework will be assigned each week and will be aimed at changing some component of participants' eating and or physical activity behaviors. Each assignment will be collected or discussed at the beginning of the next session.

Each week there will be an assignment that will help you work on changing an eating and/or physical activity behavior. The assignments will help you develop the skills to change your behaviors so it is very important to work on these assignments between sessions. We will discuss the previous week's assignment at each session or collect any worksheets you have completed.

This week's assignments are:

Write down all of the foods and beverages consumed, and record your sodium intake for one day this week.

Aim for at least 4 days of physical activity in the next week, with 15 minutes of exercise on each of those days.

Monitor the thoughts and feelings you have while making (or not making) heart healthy choices.

Let's take a few minutes now to write in each booklet our exercise goals for the week. Under each day write what kind of physical activity you will do this week.

Also, notice that the exercise chart has a column marked mindfulness and willingness, don't worry about these columns quite yet. We will discuss this next week.

What are some goals that you are making this week, <u>in addition to eating a 1500 calorie, less than 33grams of fat diet and briskly walking 4 days this week?</u> (Discuss with the group). ***Everyone should make the same minimum exercise goal. Another goal could be to cook a heart-healthy meal at home instead of dining out or ordering take-out this week, or to not have that afternoon candy bar or to cut you daily cigarette use in half (for those who smoke).***

Address any questions about the homework assignments.

14) Close

Address any remaining concerns/questions. Thank participants for attending. Encourage participants to contact you if they have any questions or concerns before the next session.

We covered a lot of information today. I want you to call me if you get home and you have any questions about the homework or anything else we discussed.

Next week we will discuss the alternative to control, which is called acceptance. We will also discuss how to be more willing to make changes to your diet and exercise routine.

See you next week!

Project ABLE

Session 2

Topics Addressed: Review of nutritional information, brief check-in, review of acceptance, limitations to control. Willingness, introduction to mindfulness, stimulus control.

Materials:

Weigh-in sheets

Weekly journals

Ten reasons I want to live a heart healthy life worksheet

1) Weigh in, turn in weekly journals

2) Review

> **A**ctivity: Were you able to meet your physical activity goals last week? What thoughts or feelings did you notice? What sorts of activities did you do? Did you stick to your schedule?
>
> **B**ehavior: Did you keep track of your diet and physical activity levels as requested? Any thoughts on keeping track of your dietary intake? How do you feel about looking up foods in the Calorie King books?
>
> **C**onsumption: Were you able to keep to a 1500 calorie diet? 33 fat grams? Low-sodium? How much sodium did you consume on the day you designated (to keep track of your sodium intake)? Were you able to make heart healthy choices despite your cravings for other foods (were you able to drop the rope)?
>
> (Specifically review journals, problem-solve on the spot)
>
> What problems have come up, help them problem-solve. What worked and didn't work?

3) Review of previous concepts

a. limits of control

b. Tug-of-war with monster

c. Acceptance

d. Calorie, fat, physical activity goals.

4) Willingness

> ***Last week we said we would help you stick to your behavioral goals while not fighting the distress you may experience while making these behavioral changes. One way to help you do this is to increase your willingness level.***
>
> ***Willingness is the extent to which you are willing to have whatever thoughts and feelings that you have and still engage in desired behaviors. This is the alternative to saying "I'm only going to engage in these behaviors when it's comfortable or not distressing.***

a. Utilize “Monsters on the Bus Metaphor” metaphor:

Let’s do an illustration to think through this idea. Let’s pretend that I’m up here driving a bus down the “heart healthy highway” [turn around] and let’s pretend that you are the monsters in the back of the bus who represent distressing things (the thoughts/feelings we wrote down earlier) that you have to go through as you’re trying to make these changes…lose weight, change your diet, exercise more and/or stop smoking. For example, one of you may say this is too hard or another one may say food is good and it comforts you and another one of you would say it’s so terrible to feel deprived like this, I hate working out! I want a cigarette! While I’m driving the bus I want you to be out loud saying these things.

[Everyone starts saying things and then the bus driver gets up and argues with different people.]

Ask participants to explain how this relates to the concept of willingness. [Relate thoughts and feelings to disturbing passengers on the bus, and emphasize that in trying to control these “passengers,” the client has in fact given up control.]

How does this metaphor relate to the concept of willingness?

When I got up and argued and interacted with you guys (my thoughts and feelings) I wasn’t being willing to drive down the heart-healthy highway. In fact, when I engaged with you, I wasn’t able to drive. I had to put the bus on the side of the road and stop moving so that I could argue with you!

What is a different way of responding so that I am still driving down the highway

Hopefully they say you could not engage with the passengers

What would it mean in your own life to be driving that bus with the passengers there?

Explicitly relate driving the bus with heart healthy living.

You are driving down the road to heart healthiness; and on the bus are these passengers (urges to eat or smoke, wanting more, stress). We are suggesting that you can let them be, accept them, and continue to drive toward heart healthiness. You can refocus attention and energy on your goal (driving the bus) rather than engaging and struggling with them.

If you are constantly trying to deal with people on the bus, you are constantly getting pulled off your path; can you continue to drive while they are bothering you?

Trying to make thoughts and feelings go away keeps you from moving forward. You need to keep on setting course for what you want to be doing.

Often people get stuck in the thought that they have to distract themselves from the urges they have in order to start or continue exercising or dieting or to stop smoking. At first, these distractions seem ok, and sometimes seem to work, but a lot of the time we can’t get rid of these thoughts, and we end up eating or smoking or not exercising, anyway.

When I was driving the bus the first time, I did so with the assumption that in order for me to keep driving on the road to heart healthiness, I needed to get rid of the urges. We

are trying to switch your perspective to see that these thoughts and feelings, no matter how distressing, cannot make you do anything; they cannot derail you.

b. "Pick up the Pen" exercise

[Ask for volunteer] ***One thing that can help you to be willing is to remember that just because you have a thought or feeling doesn't mean it's true or that you have to behave in accordance with it. One way to demonstrate this is to imagine that you are too exhausted to pick up this pen. As you imagine that you are too tired to pick up this pen, I want you to pick up the pen.***

What is this metaphor demonstrating?

This example helps to demonstrate that being able to see that thoughts are just thoughts and not necessarily true and that feelings are just feelings; and that both can be accepted, and we don't have to make them go away.

You can have the thought "I can't pick up the pen" and still physically pick up the pen (in other words, having the thought did not impact the ability to pick up the pen.)

A twist on this that might have more direct relevance is to imagine that you cannot put down a bag of potato chips. There may be times when you are eating and you have the thought that you cannot stop or put down the food. This example demonstrates that even if you have such a thought you can still simultaneously engage in the opposite behavior, which in this case is to put down the food.

Or, imagine that you cannot get up and go to the gym. There may be times when you have planned to go to the gym and felt "too tired" to get off of the couch and go work out. This metaphor demonstrates that even if you have a thought you can still engage in working out.

5) Nutrition

Healthy eating-out

1. Planning ahead

Calling ahead to a restaurant allows for advance planning—planning what to order or changing plans to go to another restaurant with healthier food choices. Also, check restaurant menus online and decide what you'll be ordering ahead of time. You can also use the Calorie King books we provided you to check for healthier alternatives on the spot!

By anticipating a restaurant meal, calories can be "banked" a few days ahead, with-in reason. It wouldn't be wise to drastically cut calories and then binge. This would have a negative effect on blood sugar levels.

Ordering first is a great way to make a better choice, since you spend less time lingering over menu choices. Menus are typically designed to make everything sound irresistible and ordering first may increase the likelihood of you ordering a healthier meal.

2. Ask for what you want

It is important to stress that it takes practice in order to heel comfortable making special requests and that this is a “technique” for sounding assertive but not aggressive.

Begin with “I” not “You.”

“I would like,” “I need,” “I will have.” Using “I” statements shows that a persona is taking responsibility for their own feelings and desires.

"You should have," "you said," "you don't understand". Using "you" often puts others on the defensive.

Example: "You didn't put the salad dressing on the side!"

Better: "I ask to have the salad dressing on the side, please."

Use a firm and friendly tone of voice that can be heard, but be nice.

Look the person in the eyes. Eye contact says a lot. Avoiding eye contact often means you don't feel strongly about what you are saying.

Repeat needs until heard. Use a calm voice. Sometimes it may take several tries. Repeat the request if necessary, using a low but firm voice. A loud voice can be threatening to others.

Healthy Eating-in

An objective to this lesson is to engage participants in a review and discussion of ways to decrease the fat and calories in recipes that they may use. Review the choices that participants can make when deciding to modify a recipe:

Reduce the ingredient

Eliminate the ingredient

Substitute ingredients

To begin modifying a recipe, first analyze your recipe and identify the high fat and high calorie ingredients.

Then ask yourself, can I...

...Reduce the ingredient?

Sugar can often be reduced by 1/4 to 1/3 and not affect the final product.

Fats can be reduced by ¼ to 1/3 or more in baking. For every tablespoon of fat eliminated, 100 calories are saved!!!!!

Nuts – reducing ¼ cup of nuts in a recipe saves 170 calories.

Cheese – reducing 1 ounce of cheese in a recipe saves 100 calories.

...Eliminate the ingredient?

Is the ingredient essential to the recipe, or is it just there for tradition?

For example: leaving out the sausage in a lasagna or Italian meat sauce recipe will reduce the calories, sodium and fat without affecting the quality.

...Substitute ingredients?

Ask yourself the purpose of the high calorie/high fat ingredient. Many times a healthier substitute can be made.

For example: substitute extra lean ground round for ground chuck in meatloaf or meatball recipes. You save 50 calories per ounce!

Engage the participants in a discussion regarding ways in which they have modified recipes since enrolling in Project ABLE.

6) **Eating Cues**

Let's focus on coping with the environment around us when trying to live heart healthily. It is possible to change aspects of the environment to promote healthy eating and physical activity.

These cues in our environment have a very strong influence on our behavior.

There are many cues at home, at work, and in social settings that lead to eating or wanting to eat. Some of these cues are obvious, but some are not.

What happens in these situations where we find ourselves eating without being hungry? In many cases, a neutral stimulus, such as watching television, has become paired with eating. After hundreds of pairings, the neutral stimulus, or cue, elicits eating even in the absence of hunger. Thus, people often feel they need a snack whenever they turn on the TV, simply because these two events have been paired so many times.

The repeated pairing of two events, such as the TV and eating, forms a "habit." Eating habits which have led to being overweight can be changed by uncoupling the cue from eating.

Similarly, you may be struck by the urge for popcorn the moment you walk into a movie theatre. Why don't you have this urge when you walk into the bathroom or the attic? Because you don't (usually) eat in these two latter areas.

A whole variety of events including thoughts and feelings, as well as the sight or smell of food, can become powerful cues to eat.

Problem Cues

There are several places where challenging cues can be present.

Home. *The kitchen is not the only room in the house for problem food cues. If eating occurs in living rooms, dens, or bedrooms, these rooms will become food cues.*

Eating while doing other things can also be problematic. Inquire whether or not the participants experience this at home. Examples include watching TV, talking on the phone, or reading the newspaper.

Work place. *The workplace is often full of food cues.*

Shopping. *The grocery store is a prime location for food cues especially under certain circumstances. Imagine shopping when you are hungry; you do not have a shopping list; you have a "bonus card" to take advantage of in-store specials; and free samples are being given out!*

Key Strategies

I. Keep high-calorie, high fat foods out of the house and workplace
II. Keep lower-calorie, healthy choices more available and visible – if your choice for eating something between meals is apples, oranges, or carrots, it makes it easy to make a healthy choice – and it's not about will power!
III. Limit eating to one place
IV. Limit activities while eating
V. Think of other ways to limit exposure to tempting foods. (For example, It would be unreasonable to never go to the movies, but it is possible to make a rule not to go to the concession stand. By never going to the concession stand, it is possible to break the connection or cue between the movies and popcorn.)

Open up a discussion of eating cues and ask the participants about the eating cues they have noticed in restaurants and possible solutions on how to handle these eating cues. Some examples include:

Eating cue: "Table tents" in restaurants that feature pictures of desserts.

Possible solution: Put the tent under the table or out of sight.

Eating cue: A dessert cart or tray that is brought to the table.
Possible solution: When ordering the entrée, request the cart/tray not be brought to your table. If others want dessert, possibly excuse yourself while they order and ask someone to order fruit for you.

7) Activity Cues

Just as some events become paired with eating, others may be associated with inactivity. The sight of an easy chair or sofa provides a strong cue to sit down, if not fall asleep. What cues YOU to inactivity? … What serve as cues to be MORE active?

There are two ways to address activity cues:

A. ***Add positive activity cues.*** *In order to become more active, it is important to have an environment that supports activity. Storing a physical activity bike in the basement or garage is a sure way to "forget" to use it. Setting up the environment to "cue" us to physical activity will increase activity.* Review examples.

B. ***Get rid of cues for inactivity.*** *TV /computers are big cues for inactivity. Also, sometimes learning to be "less efficient" can be a good thing! Our environment is full of time-saving and step-saving devices that promote inactivity.* (Examples include elevators, fax machines and remote controls).

Discuss ways to get rid of inactivity cues.

WILLINGNESS

In last week's session, we discussed the concept of willingness. Willingness is the extent to which you are willing engage in desired behaviors EVEN IF DOING SO CAUSES UNCOMFORTABLE THOUGHTS AND FEELINGS. This is the alternative to steering clear of behaviors that leave you feeling bored or anxious or depressed or hungry or with strong urges or tired, etc.

Willingness and Cues

The times when we are cued to eat (or be sedentary) are terrific opportunities to practice acceptance and willingness. The cue will cause all sorts of INTERNAL experiences (thoughts, feelings, urges) before you DO anything. We can't do anything about the internal reaction to the cue, but we do have say over our EXTERNAL reaction. What's a good example?

Examples of Willingness from Real Life

What are some EXAMPLES of willingness?

You just got home from work are feeling stressed and you know that if you eat a lot of Oreos your spouse brought home, you'll feel better. However, instead of eating, you start sorting through your mail instead of eating. You stay anxious, but you accept the experience of this emotion. You also have many annoying thoughts about the Oreos and a strong craving to eat them. You accept these thoughts and urges, and read a magazine you received in the mail instead of eating. The thoughts and urges stay; you don't fight them, but you don't eat. You keep right on reading.

What are some recent examples of willingness from YOUR life?

8). Questions

9) Homework

Keep track of calorie, fat gram and sodium intake (sodium= 1x week). Increase physical activity level to 20 minutes of brisk walking a day, four times a week.

From now on I'd like for you to score how mindful and willing you were to exercise on the days you have set aside to do so. I'd also like for you to rate how mindful and willing you were when you did/did not make heart healthy diet choices once a day. You can use the space labeled "thoughts and feelings" to keep track of your mindfulness and willingness.

Additionally, I'd like for you to complete Ten reasons I want to live a heart healthy life handout. The next time we meet, we will talk about goals and life values regarding living a heart healthy life.

Project ABLE

Session 3

Topics Addressed: How you eat, values and goals, willingness and acceptance continued, defusion

Materials:

Weigh-in sheets

Weekly journals

1) Weigh in, turn in weekly journals

2) Review

Activity: Were you able to meet your physical activity goals last week? What thoughts or feelings did you notice? What sorts of activities did you do? Did you stick to your schedule?

Behavior: Did you keep track of your diet and physical activity levels as requested? Any thoughts on keeping track of your dietary intake? How do you feel about looking up foods in the Calorie King books?

Consumption: Were you able to keep to a 1500 calorie diet? 33 fat grams? Low-sodium? How much sodium did you consume on the day you designated (to keep track of your sodium intake)? Were you able to make heart healthy choices despite your cravings for other foods (were you able to drop the rope)?

****Specifically review journals, problem-solve****

What problems have come up, help them problem-solve. What worked and didn't work?

3) Review of previous concepts

a. Willingness

b. Cues

c. Nutritional information (Healthy eating-in and healthy eating-out)

4) *How* you eat

How Often You Eat

When attempting to lose weight, it is tempting to skip meals to save calories. This often backfires because the resulting hunger can lead to eating larger quantities (or bingeing), which more than makes up for the skipped meal.

While hunger is a normal experience – and should be experienced during weight loss (and happens to people within a healthy weight range prior to the start of most meals), hunger should not get so extreme that it prompts out of control eating.

Indicate that a regular pattern of meals will help keep hunger under better control. A regular pattern of meals means that there is some consistency from day to day. A pattern of five smaller meals may be helpful for hunger control. The alternative of 3 moderate meals and one snack is sometimes better for participants who have difficulty controlling portions each time they are faced with food.

The message to convey is "a regular pattern of meals is important." Discuss extent to which participants have adopted a regular pattern of eating and problem solve as necessary.

How Fast You Eat

Ask participants if any would describe themselves as ***fast eaters.***

Review the reasons why eating more slowly is desirable.

- ***Awareness***. Many people are so used to loading the fork while chewing, and putting more in as soon they swallow, that the rhythm becomes almost automatic. It is difficult to know how much is eaten when eating in this fashion.
- ***Satiety***. Just as it takes time for the stomach to digest and process food into the nutrients the body needs, it takes time for the stomach to send a message to the brain saying, "I'm full." By eating too rapidly, the body has not had a chance to send the "full" signal to the brain and therefore overeating is more likely.
- ***Control***. Eating slowly provides a sense of self-control. It provides more time to think about what you are eating and more time to help you make good food choices.
- ***Enjoyment***. Eating food slowly provides more time to enjoy it, to savor each bite.

Strategies to slow down eating:

Pausing. Introducing a pause between bites or even in the middle of a meal can slow the meal down considerably. This pause can take the form of sitting back in the chair from time to time, talking with fellow diners, or cutting food into smaller pieces.

Putting down the utensil. Putting down the fork or spoon between bites will automatically slow the rate of eating.

Ask participants to offer other suggestions for slowing down eating.

5) **Values and Goals**

Values as a "compass" and goals as "mile markers"

Distinguish between goals and values. ***Values are not something that you are going to accomplish in the near future, but rather something to aspire to -- in this case, always trying to live and eat as healthily as possible. A goal is something you aim to achieve; a value is something you are always moving toward.***

Indicate to participants that progress is being made as they move in the direction of their values, even if their immediate goals (weight loss) is not ideal.

Outcome vs. Process

Explain how the process itself can become the goal. Relate to "dropping the rope" as an ongoing process in the "tug of war with a monster" metaphor.

Values Clarification

In different areas of our life, we have different values and goals. For each of these goals, there are barriers that can prevent us from achieving what we want. In the areas of your life where you do live up to your values, how do you do overcome those barriers? In areas where you don't live up to your values, might you use those some strategies of acceptance?

Note in that in one's life one must constantly put energy into living in accordance with one's values. ***It is often not easy to live every day in accordance with our values. Some people might have less of a struggle in terms of their weight, but instead struggle in other areas. You are all here because weight loss is a goal that you have. You may have different reasons for wishing to lose weight, depending on your values.***

Why do you think it is often difficult to act, daily, in a manner consistent with your personal values? Possible examples:

Not having values in mind when acting
Short term (instead of long term) thinking
Conflicting values

It is important to have your values at the forefront of your mind. It is easy to think in the short-term, but through mindfulness we can keep our ultimate values in mind. This can be achieved by:

Clearly defining and understanding your values
Integrate values into behaviors, by considering:
What is making me want to eat this food, right now?
What are my alternatives?
Will eating this food take me closer to, or further from, my values?

5) Relating values with ACT themes

Discuss the relationship between the psychological concepts and values

- Mindfulness: being aware of the thoughts, urges, and feelings that have in the past motivated us to eat.
- Willingness: being willing to have thoughts, urges, and feeling related to eating, without having to act on them.
- Defusion: being distant or seeing yourself as separate from thoughts, urges, and feelings that can motivate us to eat.

Use homework from last week to talk about values/goals and barriers to attaining goals and living in accordance with values

8) Acceptance and willingness continued

What happens inside you when you turn down a very tasty food that you know is not good for you? (Urge, craving, sense of deprivation, annoyance, thoughts about eating, imagine eating)

What happens inside you when you exercise? What is it like to have these experiences?

What do you usually do in response to these thoughts/feelings? (Try to get rid of them; only way: give in and eat/ be comfortable)

What would it be like to sit with them?

So, one reason we engage in unhealthy behavior is to get comfortable and contented. And when we have strong urges/cravings/feelings of deprivation/annoying thoughts/etc. we are not comfortable.

Another set of internal experiences that make us uncomfortable are distressing emotions like stress, anxiety, worry, sadness and even boredom. What do you think is the connection between these feelings and unhealthy eating? (Tasty foods temporarily reduce the emotional distress.)

Does trying to fight it off get you anywhere? (i.e., Is eating ultimately a successful way of doing that?)

Eating to make feelings go away. ***Imagine you are feeling really anxious, and you are thinking about how it would be to eat this ice cream. How would it feel while you were eating it and then after you were eating?*** [Make the point that it may feel good for a little bit]

Do you have to make feelings go away? Could you accept the feelings and not eat?

Reiterate that ***feelings are part of what it means to be human***.

It is a natural assumption to think that you shouldn't have to feel badly but the truth is that they are part of life. Ask participants to identify what challenges are going to continue to come up one year, 5 years,10 years from now. Are you willing to experience these things?

9) Strategies to help you increase willingness/ Defusion

A way to help increase your willingness is to defuse from your thoughts and feelings. By defusion I mean to step back from your thoughts and feelings and to see them for what they are: simply mental processes taking place within your brain.

Utilize "Bad Day at Work" Exercise: Part 1:

Imagine you have had a really bad day, stressed out, hopeless about whether you are ever going to lose weight, you are at work and someone brings tray of mini muffins, imagine all details (e.g., thinking, smell, everyone eating) What kind of thoughts and feelings came up for you? [Write thoughts/feelings on board]

Utilize "Bad Day at Work" Exercise: Part 2:

Imagine yourself having that very bad day again, and this time step back and notice.

I was having the thought that [write on board]

And/But [write on board]

Utilize "I'm having the thought/feeling that" exercise:

Solicit common eating- (exercising, smoking) relevant thoughts, e.g. "I deserve this piece of cake." I'll go to the gym tomorrow. Solicit thoughts and feelings regarding anxiety and depression

Utilize "And / but" exercise:

I would like to exercise but I'm feeling too tired VERSUS I would like to exercise AND I'm feeling tired. When you replace BUT with AND it suggests that you can both engage in desired/valued behaviors and simultaneously feel like you don't want to

Utilize "Hand in Front of the Face" exercise:

Ask participants to hold hand in front of face and note what they see. Then, ask them to slowly move their hand away, and then note what they see (e.g, the lines and outline of the hand) Explain that as we distance ourselves from our hands, we can see more than when we are very close. Explain how this parallels the experience of being "fused" vs. "defused" from our thoughts and feelings.

Utilize "Freight Car" metaphor:

Imagine you are in a freight car, and in there are all of these signs that represent your thoughts and feelings. Might seem overwhelming. You may lose perspective that you are even on a train. Now what if you could get out of the train and get on a bridge and look down on the train tracks and see the freight cars rumbling by. You could see that in each car is a sign that has a thought and feeling written on it, and you are watching them go by. You are watching yourself have the thoughts.

Explanation of Defusion

A very important way to increase willingness and decrease the distress you have about urges to eat is to distance yourself from the urge for the purpose of living your life in accordance with your values.

Fusion refers to being in the feelings/thought as opposed to seeing the thought from outside. The goal for defusion is to allow for the uncoupling between internal experiences and actions.

Actions don't have to follow from thoughts and feelings. For example, You can have a strong thought that you should give up and forget dieting and simultaneously eat healthy.

Similarly, you can have cravings and not give into them. You can dislike exercising and still do it.

Utilize "I'm a Banana" exercise:

Try to think of the thought "I'm a banana." In a certain way, all thoughts are just thoughts, some thoughts you are used to buying into and getting fused with. It's very hard to have the thought "I'm a banana" and it's very hard to believe it. All thoughts are just thoughts, some we just more readily buy into.

Goal of defusion is to learn to look AT your thoughts rather than FROM them.

Defusion allows you to distinguish between person doing the thinking and the thoughts/feeling themselves

Exercise: "Note a time today when you had a thought or feeling that you wanted to go off of your eating and exercise plan and you were able to stick with it anyway. Example: I'm having the thought that the cookies look really good and I am able to stick with the plan of eating healthy by eating an apple, anyway. Example: I'm having the feeling of wanting to stay in bed and I am getting up and exercising, anyway. "I am having the thought that/feeling of _____and I am able to _____, anyway."

10. Homework

Keep track of calorie, fat gram and sodium intake (sodium= 1x week). Increase physical activity level to 25 minutes of brisk walking a day, FIVE times a week.

From now on I'd like for you to score how mindful and willing you were to exercise on the days you have set aside to do so. I'd also like for you to rate how mindful and willing you were when you did/did not make heart healthy diet choices once a day. You can use the space labeled "thoughts and feelings" to keep track of your mindfulness and willingness.

Practice defusion exercises when you encounter the urge to eat unhealthily or to not exercise. Make note of these encounters (in your journal)and how successfully you were able to defuse from the urge and be willing to make heart-healthy choices.

Make note of next session being our last session

Project ABLE

Session 4

Topics Addressed: Mindless eating, urge surfing, distress tolerance, lapse and relapse prevention, end of program.

Materials:

Weigh-in sheets

Weekly journals

1) Weigh in, turn in weekly journals

2) Review

Activity: Were you able to meet your physical activity goals last week? What thoughts or feelings did you notice? What sorts of activities did you do? Did you stick to your schedule?

Behavior: Did you keep track of your diet and physical activity levels as requested? Any thoughts on keeping track of your dietary intake? How do you feel about looking up foods in the Calorie King books?

Consumption: Were you able to keep to a 1500 calorie diet? 33 fat grams? Low-sodium? How much sodium did you consume on the day you designated (to keep track of your sodium intake)? Were you able to make heart healthy choices despite your cravings for other foods (were you able to drop the rope)?

****Specifically review journals, problem-solve****

What problems have come up, help them problem-solve. What worked and didn't work?

3) Review of previous concepts

4) The Problem of Mindless Eating

What is mindless eating? What are some examples of mindless eating? (Elicit from group what this is and ask for examples (such as eating while cooking dinner, watching television, negative affect, breaking diet, etc.))

Mindless eating is detrimental to weight control and dieting efforts.

You actually have less information about your own eating behaviors so you're not in a good position to be able to change them if you don't know what you are doing. We have all had the experience where we sat down in front of the television or computer with a container of something to eat and all of a sudden the bag or container is empty! It happened so fast that you didn't even make the choice to eat the whole bag, it was over before you knew it! In these situations, research indicates that we substantially underestimate what we eat.

Mindless eating also refers to food choices we make without awareness of our health goals.

Often, in the heat of the moment (where heat = in the presence of what we want) our minds push long-term goals to the back burner and our short-term goals (feel good!) come to the fore. Mindlessness really boils down to no moment-to-moment awareness of your health goals.

Next week we will discuss techniques to help with mindless eating.

Why mindless eating is dangerous for weight control:

Accuracy. *You have less information about your own eating behaviors so you're not in a good position to be able to change them. We have all had the experience where we sat down in front of the television or computer with a container of something to eat. In these situations, research indicates that we substantially underestimate what we eat.*

Lack of awareness of the decision to eat. *We have all had the experience when we were eating and all of a sudden the bag or container is empty. It happened so fast that you didn't even make the choice to eat the whole bag, it was over before you knew it.*

5) How to reduce mindless eating

What is the alternative to mindless eating? Mindful eating.

The alternative to mindless eating is mindfulness.

Mindfulness is nonjudgmental awareness. Awareness means noticing and observing internal experiences (including perceptual sensations); feelings, thoughts, sensations (hunger or muscle cramps), perceptual sensations (what you smell or see). [Elicit examples.] ***Nonjudgmental means noticing thoughts and feelings without imposing judgment.***

How to reduce mindless eating:

Here are three key questions to ask yourself in order to decrease mindless eating:

What is triggering me to eat right now?
What are my other options?
Is eating the option I want to choose?

What do you need to do to be able to ask yourself these questions?

Slow down.
Pay deliberate attention (to reduce the usual errors we make).
"Stop, think."

Discuss the importance of mindfulness <u>while</u> you are eating (e.g., being aware of how much one is eating and having the choice to decide whether to keep eating or to stop). [Discussed earlier in the "How you eat" section]

Discuss the importance of mindfulness <u>before</u> eating

Ask participants to refer to their food record from this week. Tell them to look for a time on their food record when they had challenging eating experiences that they gave into. Ask them to imagine they are back in that moment. Ask, ***how mindful were you of thinking about your eating plan? In that moment, what would it have been like to sit with it?*** Emphasize the importance of being mindful of both the urges pushing one to eat as well as one's goal, values, and eating plan so that you will be most likely to make a healthy choice.

Leaves on a Stream Mindfulness Exercise

Utilize "Leaves on a stream" exercise and practice.

To practice mindfulness, we'd like to introduce an exercise. Close your eyes and imagine that you are sitting by a quiet stream. In front of you is a tree who's limbs flow over the stream. As you are sitting and watching the stream flow by, you notice the leaves falling from the tree limbs, landing softly in the stream, and floating down the stream. I want you to place on each of those leaves your thoughts, feelings and sensations about heart healthy living. For example, you might place the phrase, "Dieting is hard" or "I like salty foods" or "I feel better when I eat" on one of these leaves. After you have placed the thought/feeling on the leaf, watch it float down the stream. The important thing is to non-judgmentally notice when you are having a thought/feeling/sensations when you are trying to live healthily, place that thought on the leaf and watch it drift away.

[how was that for you?]

A lot of times it takes a lot of willingness to have distressing thoughts and feelings and still continue exercising (or to eat healthily). What can make it more likely or easier for you to continue exercising is to be mindful of thoughts and urges when they arise and to be mindful of the choice you have to continue to engage in the activity regardless of whether or not they are present.

6) Urge surfing

Now, mindfulness is most important, though often most difficult in a situation where you have strong urges to eat or stop exercising. One strategy that can help you be more willing to have these urges is urge surfing.

Urge surfing is the process by which you "ride the wave" of your urges, cravings, or desires to eat. By being aware or mindful of your urges, you can surf them instead of sinking into them (in other words instead of giving in to them).

You can also apply urge surfing to exercising. Think of the times you chose not to exercise, or stopped long before you had intended to. Urge surfing applied to exercising would be to start exercising while 'riding out' the urge to stop

7) Distress Tolerance

Note that some internal experiences are distressing. Ask for examples, and then for specific food-related examples.

It is natural to want distressed experiences to go away. How do we accomplish this? What are some eating-related examples?

What would it be like to sit with the distress instead of making it go away? What would be the advantage of doing this?

Utilize "Mountain" metaphor. [Hand out mountain drawing.] ***If you goal is to reach the top of the mountain but every time the road gets bumpy you look for another way around it, you will end up on endless detours and never actually make it to your destination. How does this relate to what we have been talking about?"***

Note that when you are unwilling to tolerate distress you end up not moving forward in the direction of your values. It is only once you are willing to experience negative feelings and thoughts that you are able to continue to move in the direction of your values without getting stuck or detoured.

Strategies to aid in distress tolerance

- **Defusion:** Fostering a different relationship with feelings. "Instead of being inside of them you are seeing yourself having them. You can feel anxiety and still move in the direction of your values."
- Ask participants to ***conjure up a distressful feeling and then ask them what would happen if they didn't try to fight the feeling. Instead, they were able to feel and accept the feeling no matter how strong or distressing it was.***

8) Closing/Lapse and relapse prevention

LAPSE AND RELAPSE PREVENTION

The "slippery slope" is a "participant friendly" way to introduce the theory of lapses, how to prevent lapses, and how to deal with relapses if they occur.

A lapse or a slip is a single episode of uncontrolled or inappropriate eating or lack of physical activity. The number of calories consumed or not burned off during the episode does not usually lead to much (or any) weight gain.

It is the "after-thoughts" of lapses that potentially lead to a problem. The thoughts following a lapse tend to be negative and self-defeating. People usually feel guilty and blame themselves after a lapse.

The feelings of guilt, blame, and self-defeat may lead to more overeating, feeling worse, more negative feelings, and more overeating. In this situation, the single lapse or slip has now created a cycle of relapse.

THE SLIPPERY SLOPE OF LIFESTYLE CHANGE

- Begin by defining slips as occasions in which a person does not meet their calorie or fat gram goals, their plan for being active. Stress that nearly all people experience episodes of overeating or "under"-exercising.

- These episodes are normal and should be expected. The analogy of learning to ski may help underscore this point and introduce the strategy for getting back on track.

  Explain that experiencing slips while trying to make lifestyle changes is much like falling down when skiing. The expectation is that people will fall down when learning to ski and that they still will occasionally fall when considered a good skier; it is a natural part of the learning process. The process of making lifestyle changes presents a similar case. The expectation is that people "will fall" or slip from their plans to make healthy eating and activity changes. This is a natural part of the process of learning to make and maintaining long-term lifestyle changes.

- The good news is that slips do not necessarily decrease the chances of succeeding or undo the progress that has been made. Similarly, one too many appetizers or desserts at a family celebration will not cause a 5, 10, 15, or 20 pound regain. It simply means that better planning and practice are needed.

- Ask the group what they think would happen to a skier whose thoughts after several falls were—"this is too hard, I am not coordinated enough, I am cold and tired." Chances are good that the skier might decide not to try again.

  Ask the group what they think would happen to the person trying to make lifestyle changes whose thoughts after overeating at a family celebration were—"I knew I would blow it, I don't have the willpower, the food was just too good to resist." These negative thoughts might lead the person to "blow" the rest of the day.

  The bottom line is that a person's reaction to the slip is what matters. The slip itself never really does much harm.

- Ask participants to identify common things that cause slips from healthy eating and being active. Although there are many reasons for slipping, try to find commonalities in their responses. Some examples may include stress, a busy schedule, celebrations, tiredness, and boredom.

WHAT TO DO AFTER A SLIP

- Summarize:

- Slips are normal and expected.
- No single slip will ruin everything.
- The slip is not the problem. It is the reaction to the slip that matters.

- Steps to Take After a Slip

A. ***Talk Back.*** *Remind participants of the need to recognize negative thinking after a slip, say "STOP," and counter with a rational thought that helps encourage a behavior that assists in achieving the goal of weight loss.*

B. ***Ask Questions.*** *Asking questions provides an opportunity to evaluate the situation and plan how to handle it in the future. Ask the group what kind of questions they would ask themselves in the previously described slip that occurred at a family celebration. What kind of plan might be effective?*

C. ***Regain Control.*** *Getting back on track is very important. It is best to get back on track as soon as possible. Participants should try to regain control at the very next meal, not the next day.*

D. ***Talk To Someone Supportive.*** *Better to talk through it than eat through it. Encourage participants to ask for help from Mind Your Health staff members and the group—that's what we are here for. Family and friends can also provide additional support.*

E. ***Focus on Positive Changes.*** *The same person who "blew it" today is the same person who has been successful during the previous weeks. Slips are part of the process in making long-term lifestyle changes.*

MAKING ACTION PLANS FOR HANDLING SLIPS

- Preparing for the possibility of overeating or lack of activity does not make it more likely to occur. It does, however, help identify the best possible way of handling it.

  Explain that this is very similar to having a fire drill. Fire drills do not make a fire more likely to occur. Rather, the drills help reduce the likelihood of injury or damage. This is why having a plan is important

- Review sample slips and sample plans for healthy eating and activity.

Closing: Thank you so much for participating in this program. We hope you found the techniques we provided you useful in meeting your heart-healthy goals/living more heart healthily.

9) Post Treatment QP